CyberData

The IP Endpoint Company

VoIP V3 Paging Server Operations Guide

SIP Compliant

Part #*011146*

Document Part #*930427D*
for Firmware Version 6.0.7

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http://www.cyberdata.net/support/contactsupportvoip.html

We have several technical support staff monitoring this form and they will contact you within 12 hours after receiving a submission.
Phone: (831) 373-2601, Ext. 333
Email: support@cyberdata.net
Fax: (831) 373-4193
Company and product information is at **www.cyberdata.net**.

Revision Information

Revision 930427D, which corresponds to firmware version 6.0.7, was released on March 19, 2012, and has the following changes:

- Updates Figure 2-11, "Device Configuration Page" to add the Beep on Page feature.
- Updates Table 2-6, "Device Configuration Parameters" to add the Beep on Page feature.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. Prior to installation, consult local building and electrical code requirements.

Warning

Electrical Hazard: This product should be installed by a licensed electrician according to all local electrical and building codes.

Warning

Electrical Hazard: To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.

Pictorial Alert Icons

	General Alert *This pictoral alert indicates a potentially hazardous situation. This alert will be followed by a hazard level heading and more specific information about the hazard.*
	Ground *This pictoral alert indicates the Earth grounding connection point.*

Hazard Levels

Danger: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This is limited to the most extreme situations.

Warning: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution: Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also alert users against unsafe practices.

Notice: Indicates a statement of company policy (that is, a safety policy or protection of property).

The safety guidelines for the equipment in this manual do not purport to address all the safety issues of the equipment. It is the responsibility of the user to establish appropriate safety, ergonomic, and health practices and determine the applicability of regulatory limitations prior to use. Potential safety hazards are identified in this manual through the use of words Danger, Warning, and Caution, the specific hazard type, and pictorial alert icons.

Abbreviations and Terms

Abbreviation or Term	Definition
A-law	A standard companding algorithm, used in European digital communications systems to optimize, i.e., modify, the dynamic range of an analog signal for digitizing.
AVP	Audio Video Profile
Cat 5	TIA/EIA-568-B Category 5
DHCP	Dynamic Host Configuration Protocol
LAN	Local Area Network
LED	Light Emitting Diode
Mbps	Megabits per second.
NTP	Network Time Protocol
PBX	Private Branch Exchange
PoE	Power over Ethernet (as per IEEE 802.3af standard)
RTFM	Reset Test Function Management
SIP	Session Initiated Protocol
u-law	A companding algorithm, primarily used in the digital telecommunication
UC	Unified Communications
VoIP	Voice over Internet Protocol

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1 Product Overview

The CyberData V3 VoIP Paging Server enables users through a single SIP phone extension, to access multiple zones for paging in a VoIP network and to connect to legacy analog overhead paging systems.

A second SIP extension can be configured as a night ringer playing a user-uploadable audio file.

The V3 Paging Server allows direct connection to legacy analog paging amplifiers that require a "Page Port" type of input that meets a balanced 600 Ohm 10Vpp signal or a 10k Ohm Hi-Z 2vpp signal. You can also take advantage of connections for a dry contact relay (page start output) and sense input (Fault Sense Input) for additional functionality.

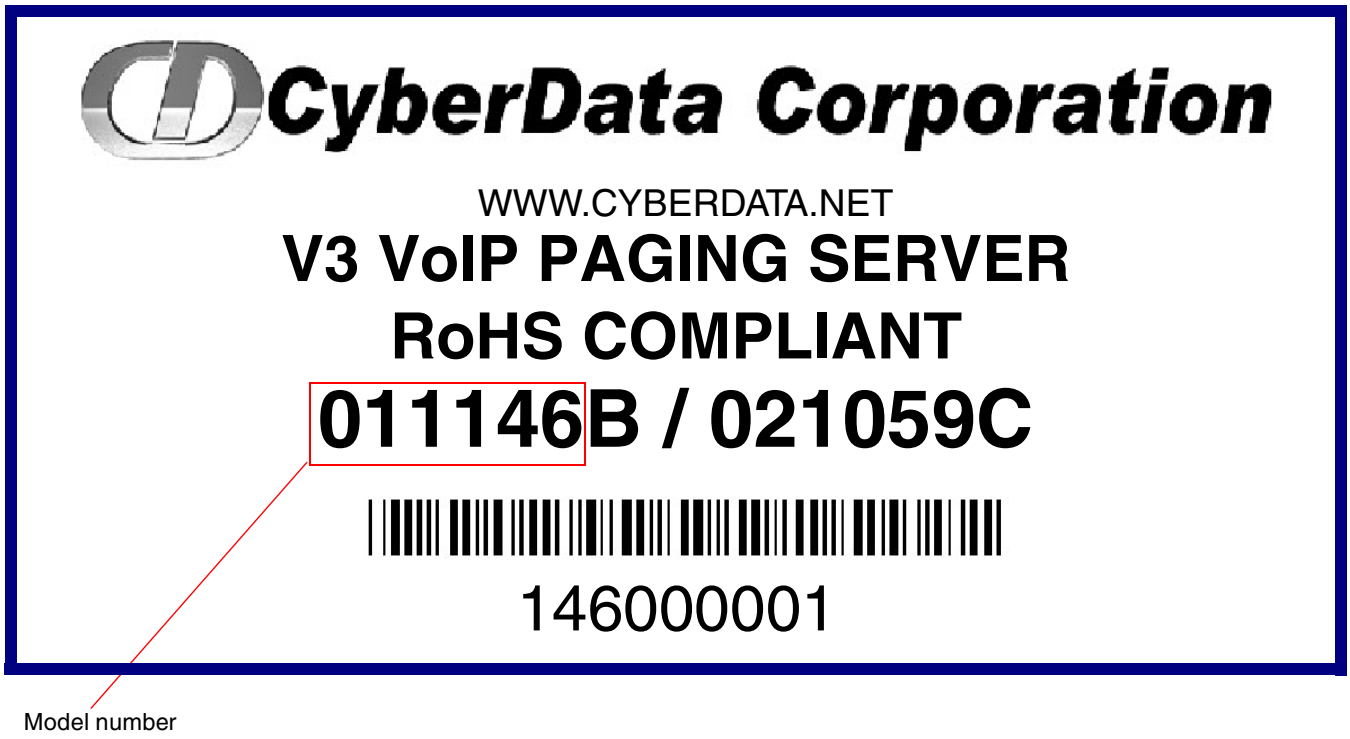
The easy-to-use, web-based configuration provides a graphical user interface to set up to 100 paging zones for IP paging with unique multicast address and port number combinations.

The V3 Paging Server connects via a single CAT 5 or 6 network cable to a standard PoE 802.3af compliant switch.

1.1 How to Identify This Product

To identify the VoIP V3 Paging Server, look for a model number label similar to the one shown in Figure 1-1. The model number on the label should be **011146**.

Figure 1-1. Model Number Label



1.2 Product features

- SIP RFC 3261 compatible
- Multicast output
- Two SIP endpoints (one for Night Ringer)
- DTMF control of zone selection
- Page Start Relay contacts
- Remote amp fault sensor
- Delayed page support
- Line-In connection for music-on-hold multicasting
- Line-out connection to support analog Amps
- User uploadable audio files
- Web-based configuration and firmware upload
- PoE 802.3af enabled (Power-over-Ethernet)
- 19-inch Rack mount option

1.3 Supported

- HTTP Web-based configuration

  Provides an intuitive GUI for easy system configuration and verification of speaker operations.
- DHCP Client
- TFTP Client
- RTP Version 2 Multicast and Unicast
- Audio Codec
  - G.711 U-law
  - DTMF detection

1.4 Product Specifications

Table 1-1. Product Specifications

Specifications	
Regulatory Compliance	FCC Class A, UL 60950, CE
Power Requirement	PoE or 48V DC
Connection Speed	10/100 Mbps
Protocol	SIP compliant
Page Port Output	Balanced 600 Ohm 10VPP
Line In:	
Input Signal Amplitudes	2.0 VPP maximum
Input Impedance	10k Ohm
Line Out:	
Output Signal Amplitudes	2.0 VPP maximum
Output Level	+2dBm nominal
Total Harmonic Distortion	0.5% maximum
Output Impedance	10k Ohm
Part Number	011146
Dimensions	6.11” L x 4.05” W x 1.15” H
Weight	1.2 pounds

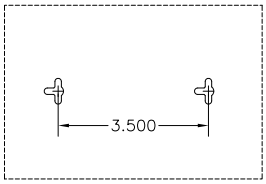
2 Setting Up the V3 Paging Server

The topics in this chapter provide information on setting up, configuring, and using the VoIP V3 Paging Server.

2.1 Parts List

The packaging for the V3 Paging Server includes the parts in Table 2-2.

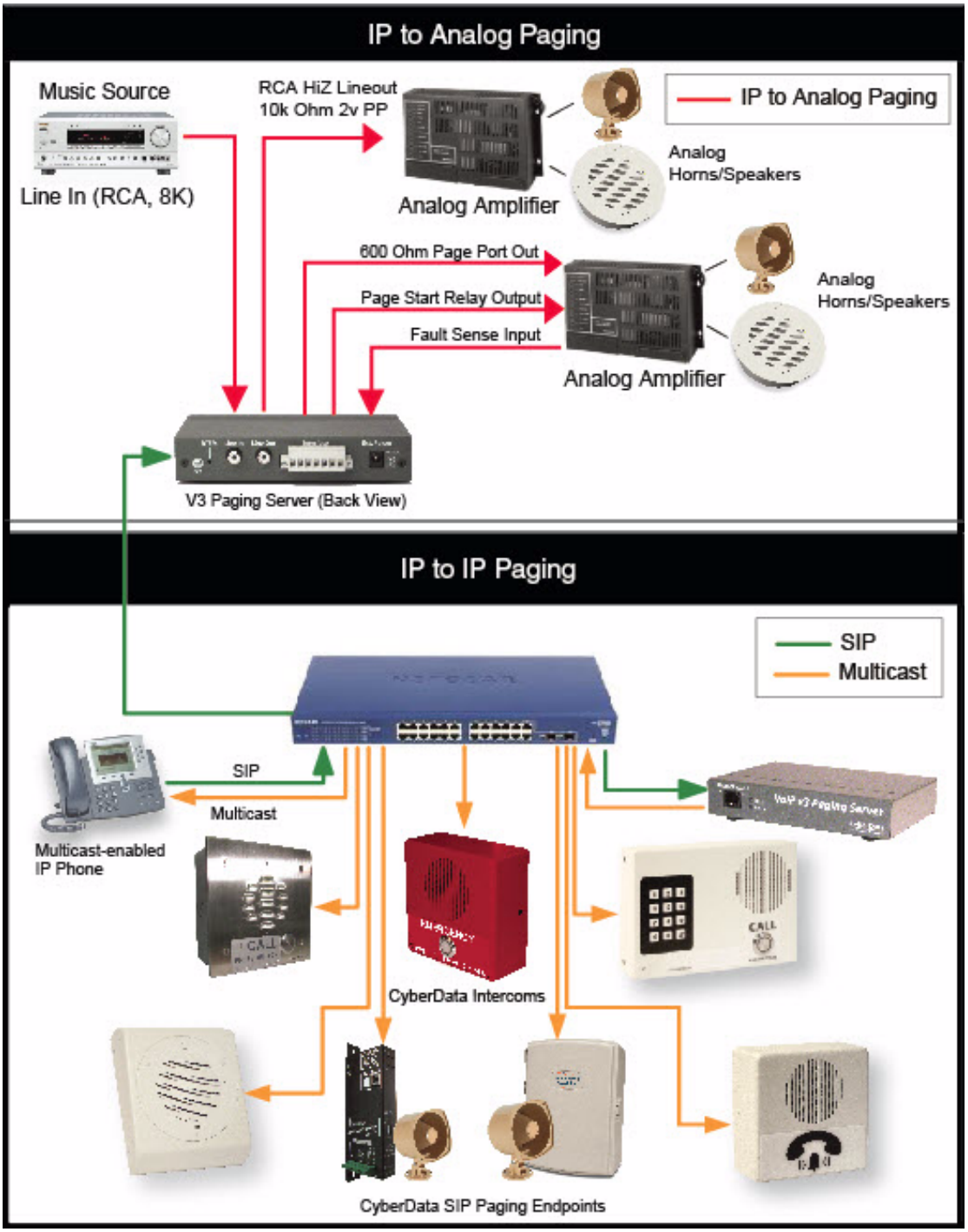
Table 2-2. Parts List

Quantity	Part Name	Illustration
1	V3 Paging Server	
1	Installation Quick Reference Guide	
1	Mounting Template (located on the last page of the *Installation Quick Reference*)	
1	Mounting Kit (part #070057A) which includes: (2) #4-6 x 7/8" Mounting Anchors (2) #4 x 1-1/4" Round Phillips Wood Screws	

2.2 Typical Installation

Figure 2-2 illustrates how the V3 Paging Server is normally installed as part of a paging system.

Figure 2-2. Typical Installation



2.3 Connecting the V3 Paging Server

Before you connect the V3 Paging Server, be sure that you have received all of the parts described in Section 2.1, "Parts List".

2.3.1 Connection Options

See Figure 2-3 and Table 2-1 for the connection options that are available for the V3 Paging Server.

Figure 2-3. Connection Options

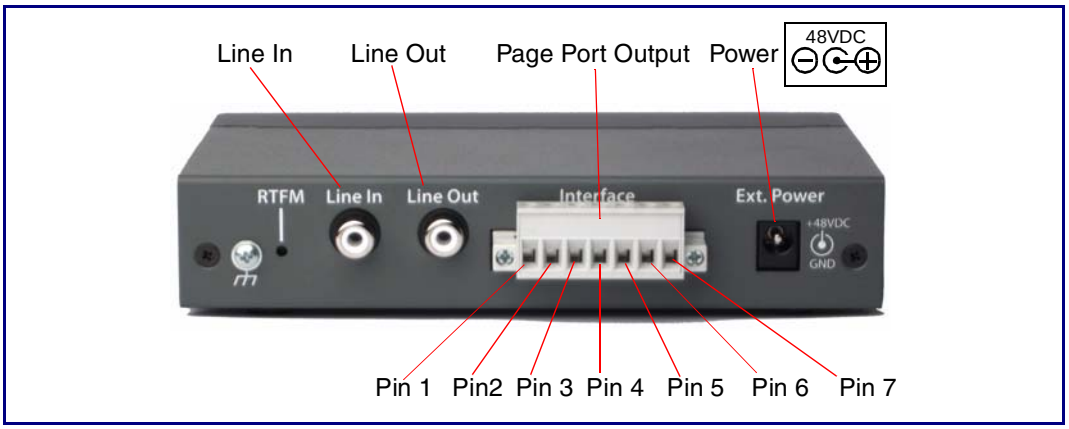


Table 2-1. Page Port Output Connections

Pin	Description
1	Fault Sense Input (Common). See Section 2.3.1.1, "Pin 1 and 2—Fault Sense Input (Common/Sense)".
2	Fault Sense Input (Sense). See Section 2.3.1.1, "Pin 1 and 2—Fault Sense Input (Common/Sense)".
3	Positive 600-Ohm Audio Output[a]. See Section 2.3.1.2, "Pin 3, 4, and 5—Positive/Negative 600-Ohm Audio Output/Audio Ground Reference".
4	Negative 600-Ohm Audio Output.[a]. See Section 2.3.1.2, "Pin 3, 4, and 5—Positive/Negative 600-Ohm Audio Output/Audio Ground Reference".
5	Audio Ground Reference. See Section 2.3.1.2, "Pin 3, 4, and 5—Positive/Negative 600-Ohm Audio Output/Audio Ground Reference".
6	Relay Contact - Common[b]. See Section 2.3.1.3, "Pin 6 and 7—Relay Contact (Common/Normally Open)".
7	Relay Contact - Normally Open[b]. See Section 2.3.1.3, "Pin 6 and 7—Relay Contact (Common/Normally Open)".

a. The 600-Ohm audio output of the page port is also suited for interfaces with lower input impedances.
b. 1 Amp at 30 VDC for continuous loads

2.3.1.1 Pin 1 and 2—Fault Sense Input (Common/Sense)

This input was designed as a method of monitoring an external amplifier that is equipped with a fault sense relay.

When enabled via the web interface (Section 2.4.8, "Configure the Sensor Parameters"), this input (when closed) will play a user uploadable audio file out of the line-out connection and/or place a SIP call to a pre-determined extension and play that file.

2.3.1.2 Pin 3, 4, and 5—Positive/Negative 600-Ohm Audio Output/Audio Ground Reference

This output allows direct connection to paging amplifiers requiring a "Page Port" type input that meets a balanced 600 Ohm 10Vpp signal.

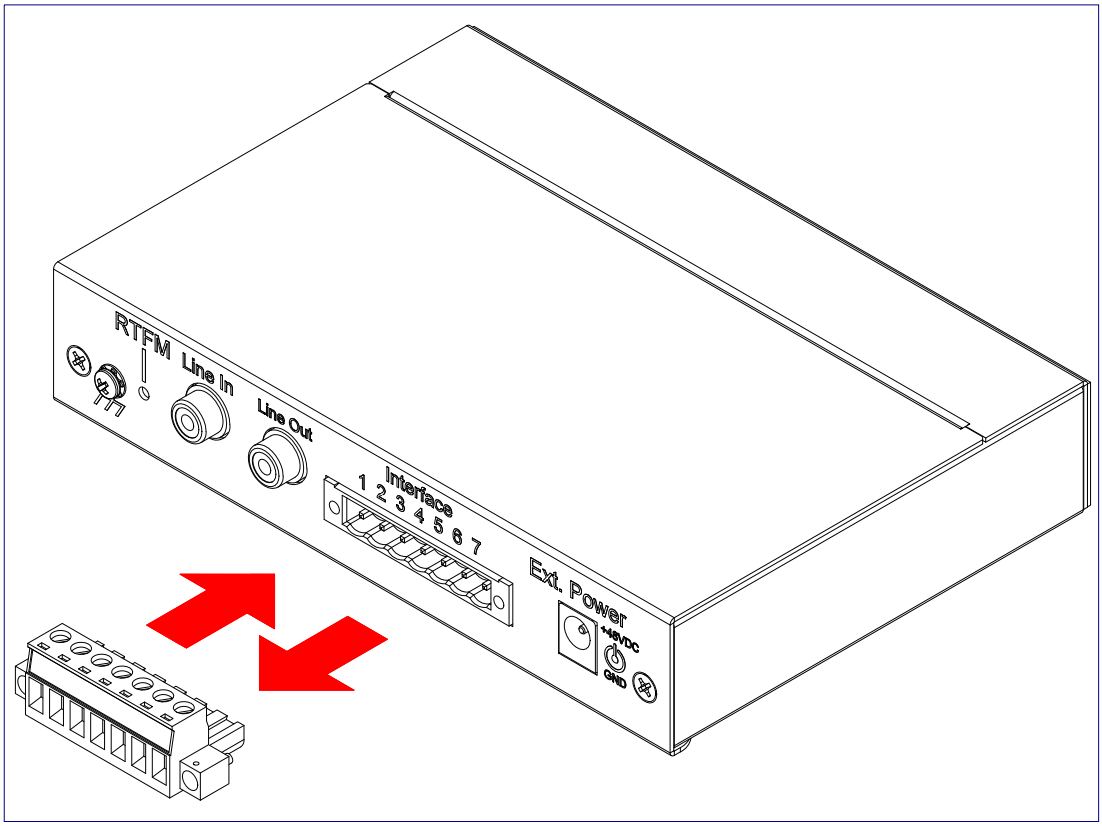
2.3.1.3 Pin 6 and 7—Relay Contact (Common/Normally Open)

When enabled on the web interface (Section 2.4.4, "Configure the Device Parameters"), every time an audio file is played out of the local line-out or 600 Ohm output, the relay will close, thereby enabling amplifiers with a remote turn-on capability to become active.

2.3.2 Removable Connector

Figure 2-4 shows the connector that is removable on the V3 Paging Server.

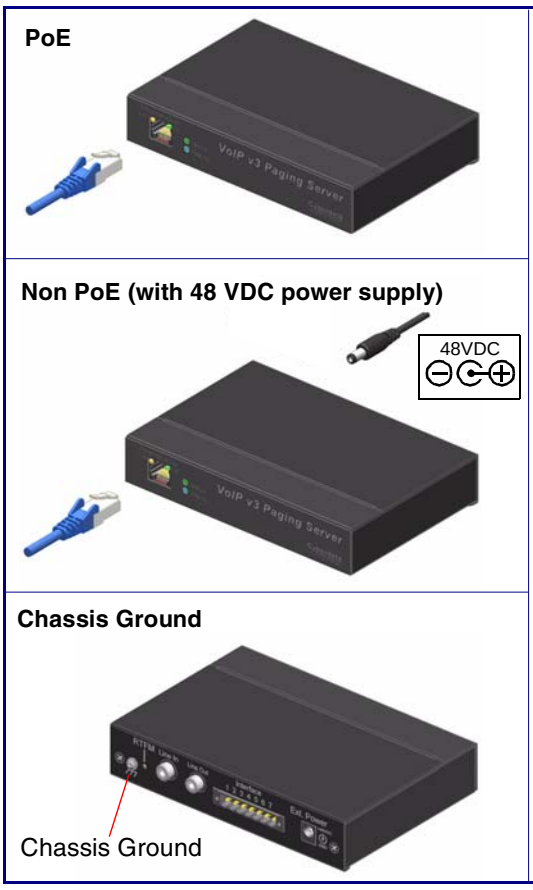
Figure 2-4. Removable Connector



2.3.3 Connect to the Power Source

To use PoE, plug a Cat 5 Ethernet cable from the V3 Paging Server **Ethernet** port to your network. As an alternative to PoE, you can plug one end of a +48V DC power supply into the Paging Server, and plug the other end into a receptacle. If required, connect the earth grounding wire to the chassis ground on the back of the unit. See Figure 2-5.

Figure 2-5. Connecting to the Power Source



To set up the V3 Paging Server, connect the device to your network:

Poe

- For **PoE**, plug one end of an 802.3af Ethernet cable into the V3 Paging Server Ethernet port. Plug the other end of the Ethernet cable into your network. See the figure on the left.

Non-Poe

- For **Non-PoE**, connect the V3 Paging Server to a **48VDC power supply**. See the figure on the left.

Chassis Ground

- If required, connect the earth grounding wire to the **Chassis Ground**. See the figure on the left.

2.3.4 Connect to the Network

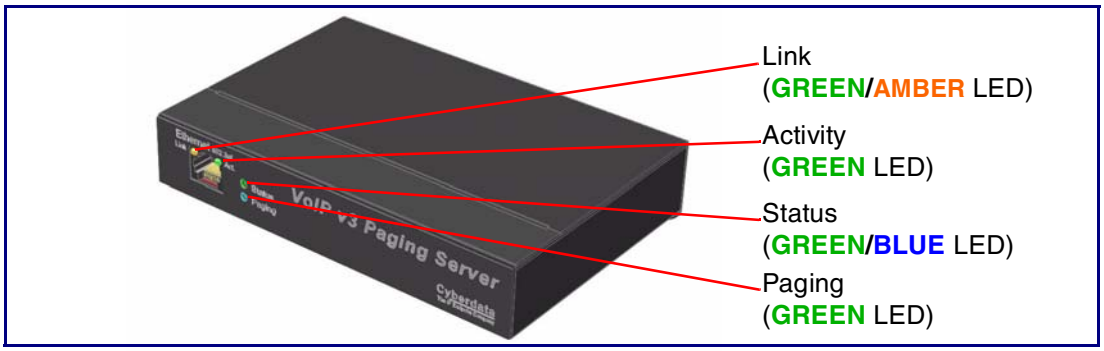
Plug one end of a standard Ethernet cable into the Paging Server **Ethernet** port. Plug the other end into your network.

Figure 2-6. Connecting to the Network

2.3.5 Confirm that the V3 Paging Server is Up and Running

The LEDs on the front of the V3 Paging Server verify the unit's operations.

Figure 2-7. Paging Server LEDs



2.3.5.1 Confirm Power on, Network Connectivity, and Connection Speed

When you plug in the Ethernet cable or power supply:

- The round, **GREEN/BLUE Status** LED on the front of the V3 Paging Server comes on indicating that the power is on. Once the device has been initialized, this LED blinks at one second intervals.
- The square, **GREEN/AMBER Link** LED above the Ethernet port indicates that the network connection has been established. The Link LED changes color to confirm the auto-negotiated connection speed:
  - The Link LED is **GREEN** at 10 Mbps.
  - The Link LED is **AMBER** at 100 Mbps.
- The **GREEN Paging** LED comes on after the device is booted and initialized. This LED blinks when a page is in progress. You can disable **Beep on Initialization** on the **Device Configuration** page.

2.3.5.2 Verify Network Activity

The square, **GREEN Activity** LED blinks when there is network traffic.

2.3.6 Announcing the IP Address

To announce the IP address for the V3 Paging Server, briefly press and then quickly release the **RTFM** switch. See Figure 2-8.

Figure 2-8. RTFM Switch

2.3.7 Restore the Factory Default Settings

The V3 Paging Server is delivered with factory set default values for the parameters in Table 2-3. Use the **RTFM** switch (see Figure 2-9) on the back of the unit to restore these parameters to the factory default settings.

Figure 2-9. RTFM Switch

Note When you perform this procedure, the factory default settings are restored. The default parameters for access are shown in Table 2-3.

Table 2-3. Factory Default Settings

Parameter	Factory Default Setting
IP Addressing	DHCP
IP Address[a]	10.10.10.10
Web Access Username	admin
Web Access Password	admin
Subnet Mask[a]	255.0.0.0
Default Gateway[a]	10.0.0.1

a. Default if there is not a DHCP server present.

To restore these parameters to the factory default settings:

1. Press and hold the **RTFM** switch until the status and paging lights come on.
2. Continue to press the switch until after the indicator lights go off, and then release it.
3. The V3 Paging Server settings are restored to the factory defaults.

2.4 Configuring the V3 Paging Server

Use this section to configure the VoIP paging server.

2.4.1 Gather the Required Configuration Information

Have the following information available before you configure the V3 Paging Server.

2.4.1.1 Static or DHCP Addressing?

Know whether your system uses static or dynamic (DHCP) IP addressing. If it uses static addressing, you also need to know the values to assign to the following V3 Paging Server parameters:

- IP Address
- Subnet Mask
- Default Gateway

2.4.1.2 Username and Password for Configuration GUI

Determine the Username and Password that will replace the defaults after you initially log in to the configuration GUI.

- The Username is case-sensitive, and must be from four to 25 alphanumeric characters long.
- The Password is case-sensitive, and must be from four to 20 alphanumeric characters long.

2.4.1.3 SIP Settings

To configure the SIP parameters, determine whether you want to register with the server. If you do, determine the number of minutes the registration lease remains valid, and whether you want to automatically unregister when you reboot. To configure the SIP parameters, you also need to determine the values for these parameters:

- SIP Server IP Address
- Remote and Local SIP Port Numbers
- SIP User ID, and Authenticate ID and Password for this User ID

2.4.2 V3 Paging Server Web Page Navigation

Table 2-4 shows the navigation buttons that you will see on every V3 Paging Server web page.

Table 2-4. V3 Paging Amplifier Web Page Navigation

Web Page Item	Description
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to go to the **Nightringer** page.
	Link to go to the **Sensor Configuration** page.
	Link to go to the **Paging Groups Configuration** page.
	Link to the **Audio Configuration** page.
	Link to the **Event Configuration** page.
	Link to the **Autoprovisioning Configuration** page.
	Link to the **Update Firmware** page.

2.4.3 Log in to the Configuration GUI

1. Open your browser to the V3 Paging Server IP address.

Note If the network does not have access to a DHCP server, the device will default to an IP address of 10.10.10.10.

Note Make sure that the PC is on the same IP network as the V3 Paging Server.

Note You may also download CyberData's VoIP Discovery Utility program which allows you to easily find and configure the default web address of the CyberData VoIP products.

CyberData's VoIP Discovery Utility program is available at the following website address:

http://www.cyberdata.net/support/voip/discovery_utility.html

The unit ships in DHCP mode. To get to the **Home** page, use the discovery utility to scan for the device on the network and open your browser from there.

Note To work with the V3 Paging Server configuration *after* the initial configuration, log in using the IP address you assign to the device. Section 2.4.5, "Configure the Network Parameters" provides instructions for entering the IP address.

2. When prompted, use the following default **Username** and **Password** to open the configuration Home page:

   Username: **admin**

   Password: **admin**

Change the Default Username and Password

To change the default Web access Username and Password:

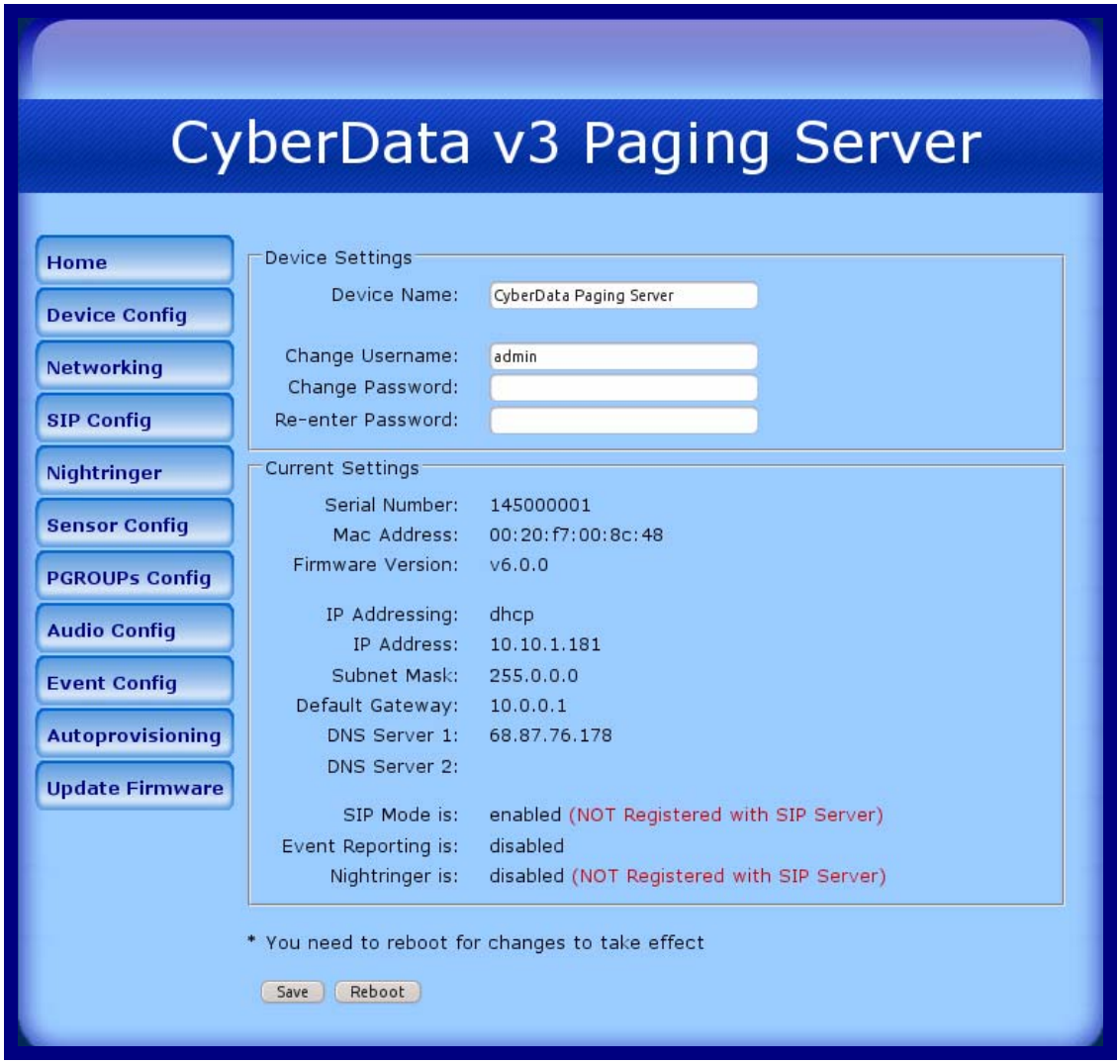
1. Enter the new Username from four to 25 alphanumeric characters in the **Change Username** field. The Username is case-sensitive.

2. Enter the new Password from four to 20 alphanumeric characters in the **Change Password** field. The Password is case-sensitive.

3. Enter the new password again in the **Re-enter New Password** field.

   Click **Save Settings**.

Figure 2-10. Home Page



4. On the **Home Page**, review the setup details and navigation buttons described in Table 2-5.

Table 2-5. Home Page Overview

Web Page Item	Description
Device Settings	
Device Name	Shows the device name (25 character limit).
Change Username	Type in this field to change the username (25 character limit).
Change Password	Type in this field to change the password (19 character limit).
Re-enter Password	Type the password again in this field to confirm the new password (19 character limit).
Current Settings	
Serial Number	Shows the device serial number.
Mac Address	Shows the device Mac address.
Firmware Version	Shows the current firmware version.
IP Addressing	Shows the current IP addressing setting (**DHCP** or **Static**).
IP Address	Shows the current IP address.
Subnet Mask	Shows the current subnet mask address.
Default Gateway	Shows the current default gateway address.
DNS Server 1	Shows the current DNS Server 1 address.
DNS Server 2	Shows the current DNS Server 2 address.
SIP Mode is	Shows the current status of the SIP Mode.
Event Reporting is	Shows the current status of the Event Reporting.
Nightring is	Shows the current status of the Nightringer.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

At this point you can:

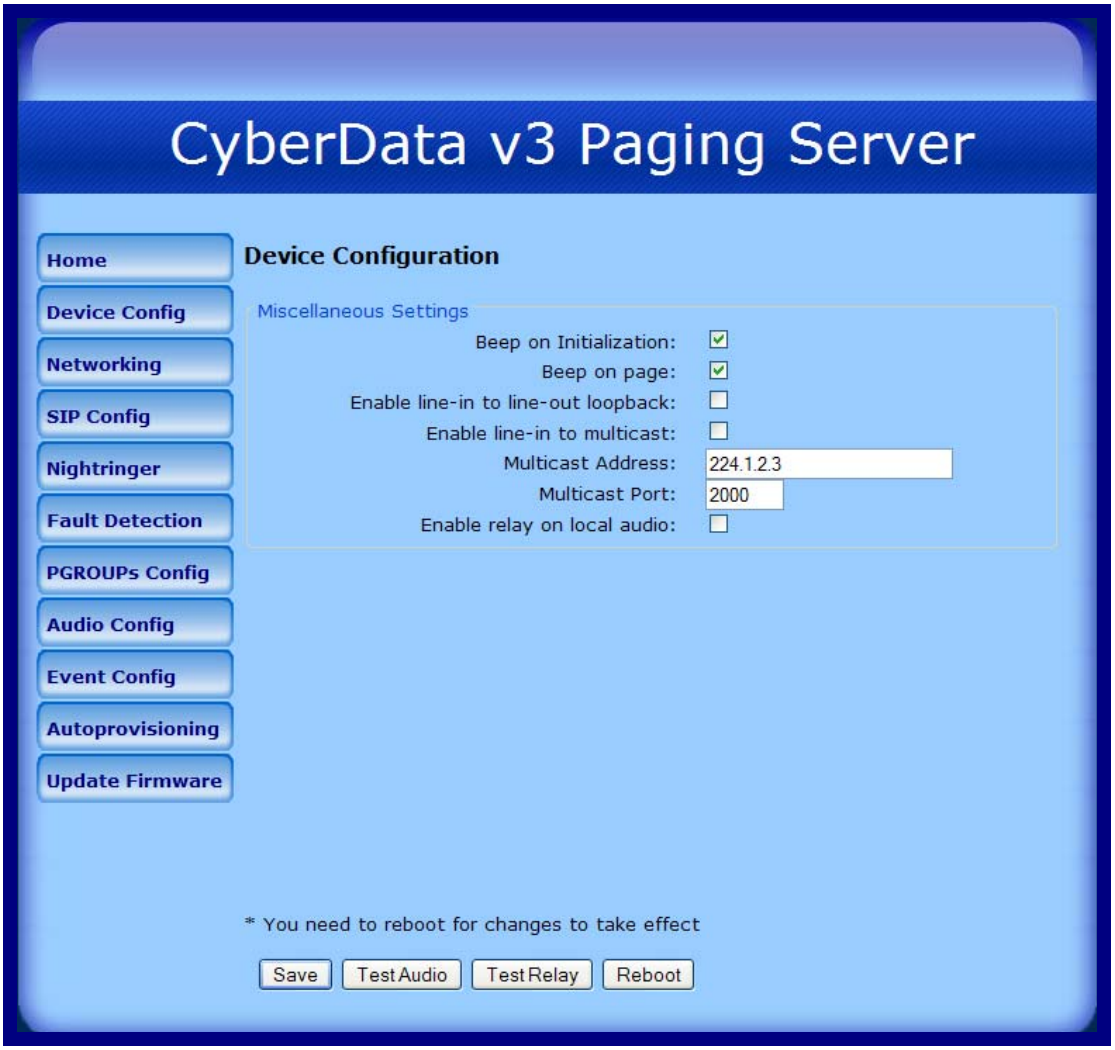
- Review the V3 Paging Server's **Current Settings**. Use the RTFM switch to restore the factory default settings. See 2.3.7 "Restore the Factory Default Settings".
- Configure the network parameters. Click **Network Setup** and refer to Section 2.4.5, "Configure the Network Parameters" for instructions.
- Configure the SIP parameters. Click **SIP Setup** and see Section 2.4.6, "Configure the SiP Parameters".
- Configure the PGROUPS parameters. Click **PGROUPS Setup** and see Section 2.4.9, "Configure the Paging Groups (PGROUPS) Parameters" for instructions.

Note Click the **Upgrade Firmware** button any time you need to upload new versions of the firmware. Refer to Section 2.5, "Upgrading the Firmware" for instructions.

2.4.4 Configure the Device Parameters

1. Click the **Device Configuration** button to open the **Device Configuration** page. See Figure 2-11.

Figure 2-11. Device Configuration Page



2. On the **Device Configuration** page, you may enter values for the parameters indicated in Table 2-6.

Table 2-6. Device Configuration Parameters

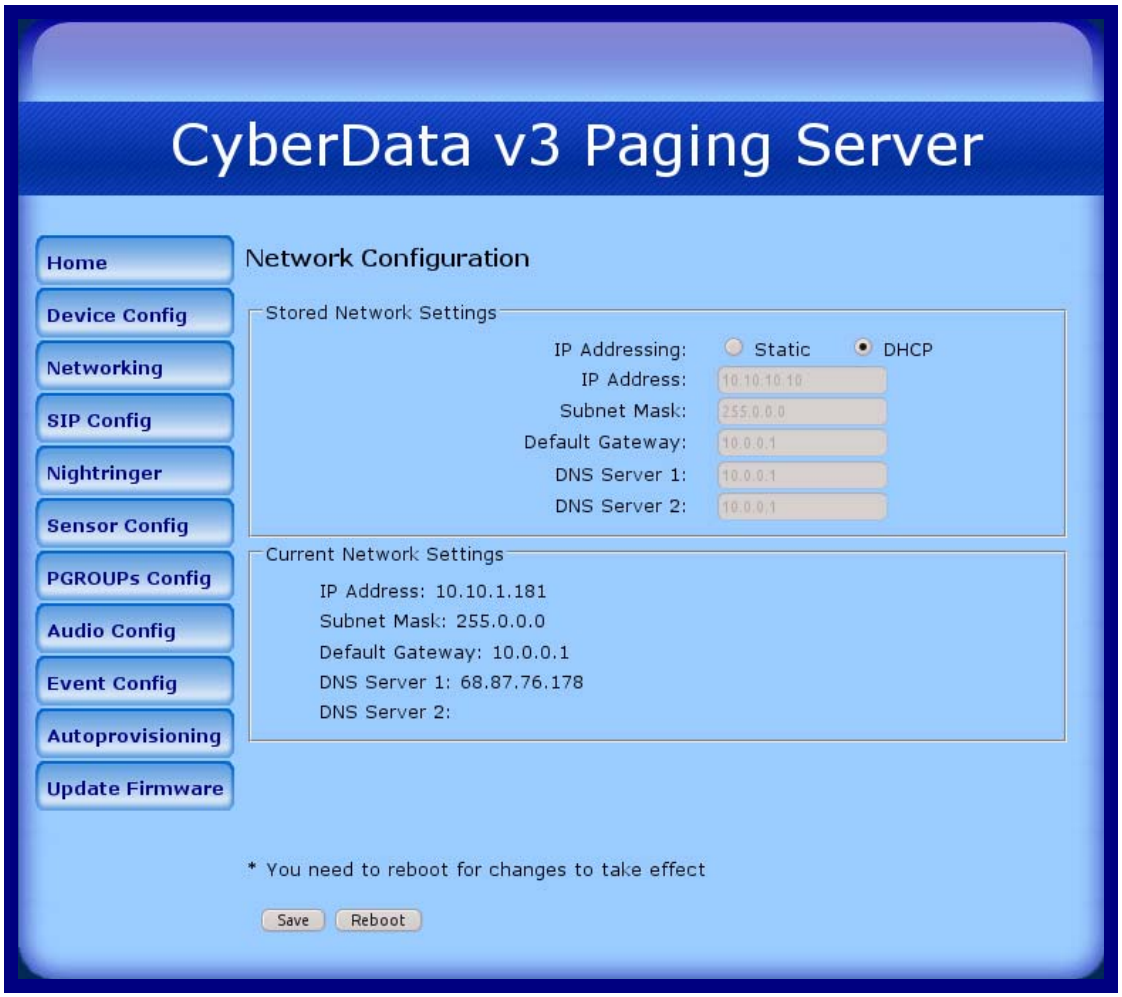
Web Page Item	Description
Miscellaneous Settings	
Beep on Initialization	When selected, you will hear a beep when the speaker initializes.
Beep on Page	When selected, the device will play a beep before a page is sent on SIP calls (works for both buffered and live pages).
Enable Line In to Line Out Loopback	When selected, audio is sent from the line -in to the line-out output.
Enable Line-In to Multicast	When selected, the line-in audio will be multicast to the address and port specified on the web page. **Note**: Ideally, the specified address and port will match that of a low priority MGROUP (such as background music) on the speakers or paging amplifiers. **Note**: When line-in to multicast is selected, do not set that multicast address and port to the same multicast address and port that is used by one of your PGROUPS. Otherwise, when you call the PGROUP, the Paging Server will be unable to send the new audio stream because the port will already be in use by the line-in to multicast stream.
Multicast Address	Type the Multicast address.
Multicast Port	Type the Multicast port number.
Enable Relay on Local Audio	When selected, the relay will be closed any time that audio is played out of the line-out/page port. This setting is for legacy analog amplifiers that are often connected to the page port. Analog amplifiers will often have a noticeable hum if they are turned on while there is no audio being played. The relay closure causes these amplifiers to turn on only when audio is sent to them.
	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
	Click on the **Test Audio** button to do an audio test. When the **Test Audio** button is pressed, you will hear a voice message for testing the device audio quality and volume.
	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click the **Save** button.

2.4.5 Configure the Network Parameters

Configuring the network parameters enables your network to recognize the V3 Paging Server and communicate with it. Click **Network Setup** on the Home page to open the **Network Configuration** page.

Figure 2-12. Network Setup Page



On the **Network Setup** page, enter values for the parameters indicated in Table 2-7.

Table 2-7. Network Configuration Parameters

Web Page Item	Description
Stored Network Settings	Shows the settings stored in non-volatile memory.
IP Addressing	Select either **DHCP IP Addressing** or **Static IP Addressing** by marking the appropriate radio button. If you select **Static**, configure the remaining parameters indicated in Table 2-7. If you select **DHCP**, go to Step 3.
IP Address	Enter the Static IP address.
Subnet Mask	Enter the Subnet Mask address.
Default Gateway	Enter the Default Gateway address.
DNS Server 1	Enter the DNS Server 1 address.
DNS Server 2	Enter the DNS Server 2 address.
Current Network Settings	Shows the current network settings.
IP Address	Shows the current Static IP address.
Subnet Mask	Shows the current Subnet Mask address.
Default Gateway	Shows the current Default Gateway address.
DNS Server 1	Shows the current DNS Server 1 address.
DNS Server 2	Shows the current DNS Server 2 address.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

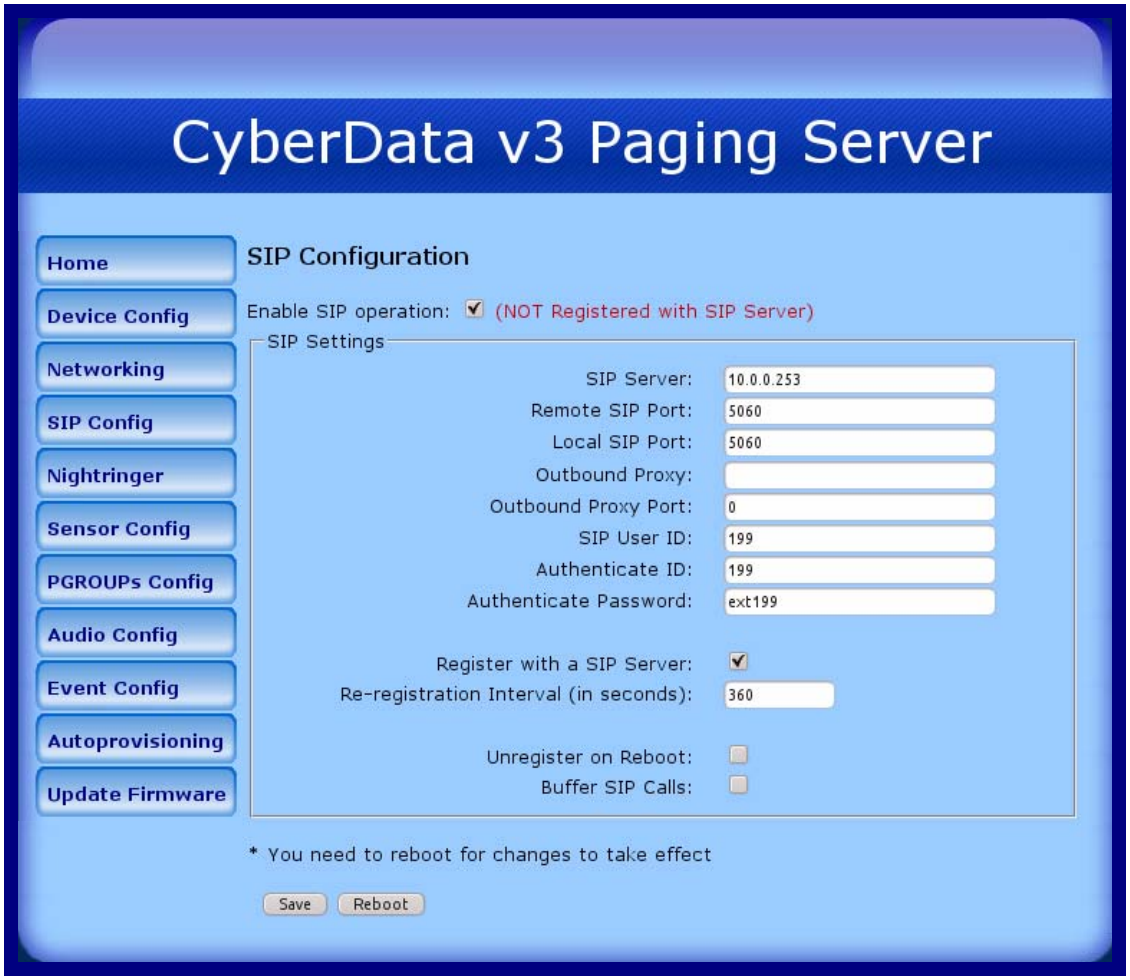
On this page:

1. Specify whether you use **Static** or **DHCP IP Addressing** by marking the appropriate radio button. Then, if you select Static, go to Step 2.
2. For Static IP Addressing, also enter values for the following parameters:
   - The V3 Paging Server's **IP Address**: The V3 Paging Server is delivered with a factory default IP address. Change the default address to the correct IP address for your system.
   - The **Subnet Mask.**
   - The **Default Gateway.**
3. Click **Save** when you are finished.
4. Click **Reboot** for the new settings to take effect.

2.4.6 Configure the SiP Parameters

The SIP parameters enable the V3 Paging Server to contact and register with the SIP server. On the Home page, click **SIP Config** to open the **SIP Configuration** page.

Figure 2-13. SIP Configuration Page



5. On the **SIP Setup** page, enter values for the parameters indicated in Table 2-8.

Table 2-8. SIP Configuration Parameters

Web Page Item	Description
SIP Settings	
SIP Server	Type the SIP server represented as either a numeric IP address in dotted decimal notation or the fully qualified host name (255 character limit [FQDN]).
Remote SIP Port	Type the **Remote SIP Port** number (default 5060) (8 character limit).
Local SIP Port	Type the **Local SIP Port** number (default 5060) (8 character limit).
Outbound Proxy	Type the Outbound Proxy as either a numeric IP address in dotted decimal notation or the fully qualified host name (255 character limit [FQDN]).
Outbound Proxy Port	Type the Outbound Proxy Port number (8 character limit).
SIP User ID	Type the **SIP User ID** (up to 64 alphanumeric characters).
Authenticate ID	Type the **Authenticate ID** (up to 64 alphanumeric characters).
Authenticate Password	Type the **Authenticate Password** (up to 64 alphanumeric characters).
Register with a SIP Server	Enable or disable SIP Registration. For information about Point-to-Point Configuration, see Section 2.4.6.1, "Point-to-Point Configuration".
Re-registration Interval (in seconds)	Type the SIP Registration lease time in seconds (default is 60 minutes) (8 character limit). Re-registration Interval (in seconds)
Unregister on Reboot	When selected, on boot, the device will first register with a SIP server with a expiration delay of 0 seconds. This has the effect of unregistering any current devices on this extension.
Buffer SIP Calls	When this is enabled, SIP calls to the device will be stored in memory and will play when either the call is terminated or the buffer is full. The receive buffer is 2MB in size and this is equal to about four minutes of ulaw encoded audio.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

1. Enter the IP address of the **SIP Server**.
2. Enter the port numbers used for SIP signaling:
   a. **Remote SIP Port**
   b. **Local SIP Port**
3. Enter the SIP registration parameters:
   a. **SIP User ID**

   b. **Authenticate ID**
   c. **Authenticate Password**

4. For **SIP Registration**, designate whether you want the VoIP Paging Server to register with your SIP server.
5. At **Unregister on Reboot**:
   a. Select **Yes** to automatically unregister the V3 Paging Server when you reboot it.
   b. Select **No** to keep the V3 Paging Server registered when you reboot it.
6. In the **Register Expiration** field, enter the number of seconds the V3 Paging Server registration lease remains valid with the SIP Server. The V3 Paging Server automatically re-registers with the SIP server before the lease expiration timeout.
7. Click **Save**.
8. Click **Reboot** for the new settings to take effect.

2.4.6.1 Point-to-Point Configuration

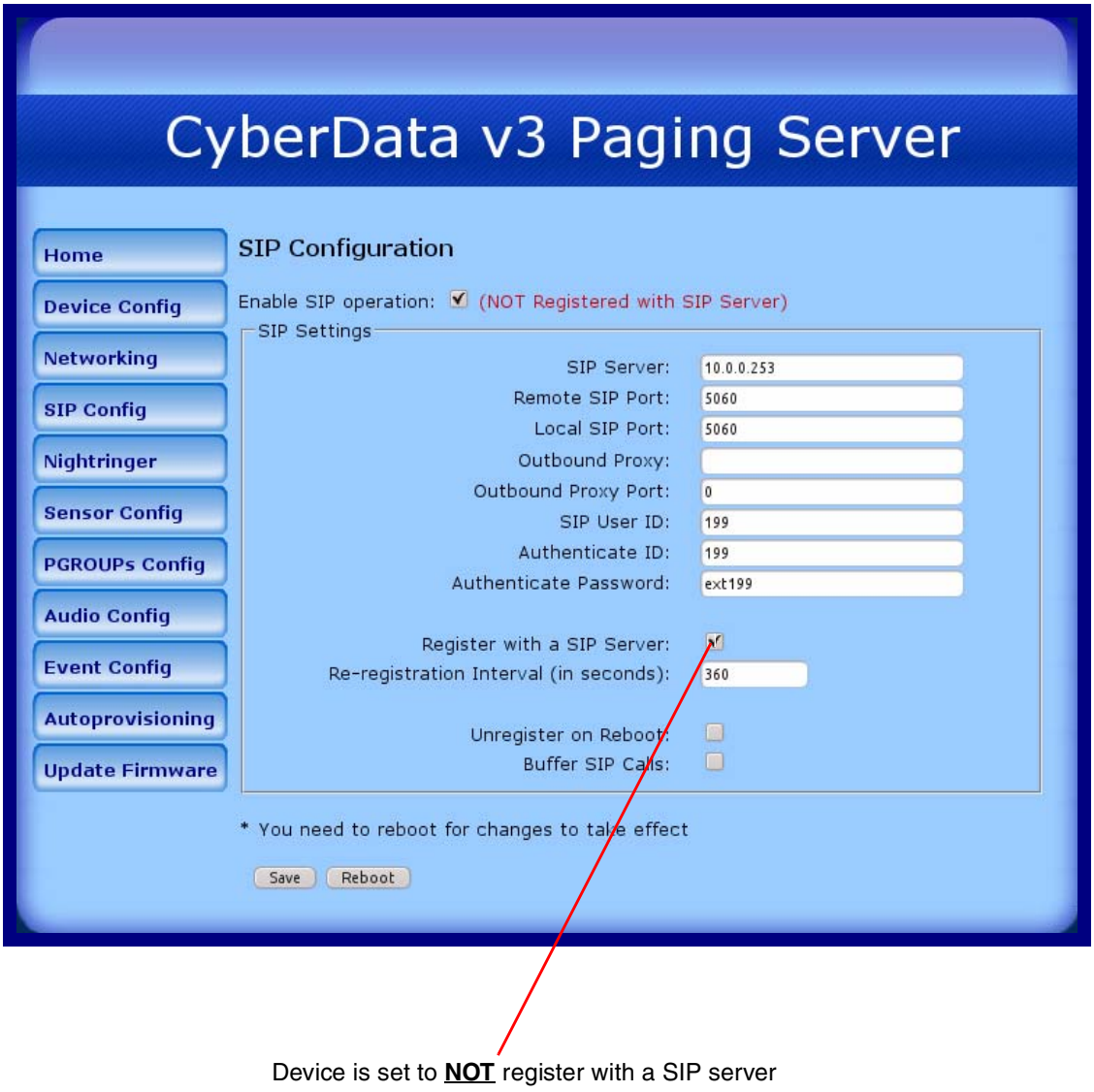
When the board is set to not register with a SIP server, it's possible to set the device to dial out to a single endpoint. To do this, do the following:

1. On the **SIP Configuration** page (Figure 2-14), make sure that the **Register with a SIP Server** parameter is not selected.
2. Type the IP address of the remote device that you want to contact into the **Dial out Extension** field

Note The delayed DTMF functionality is available in the Point-to-Point Mode.

Note Establishing point-to-point SiP calls may not work with all phones.

Figure 2-14. SIP Configuration Page Set to Point-to-Point Mode

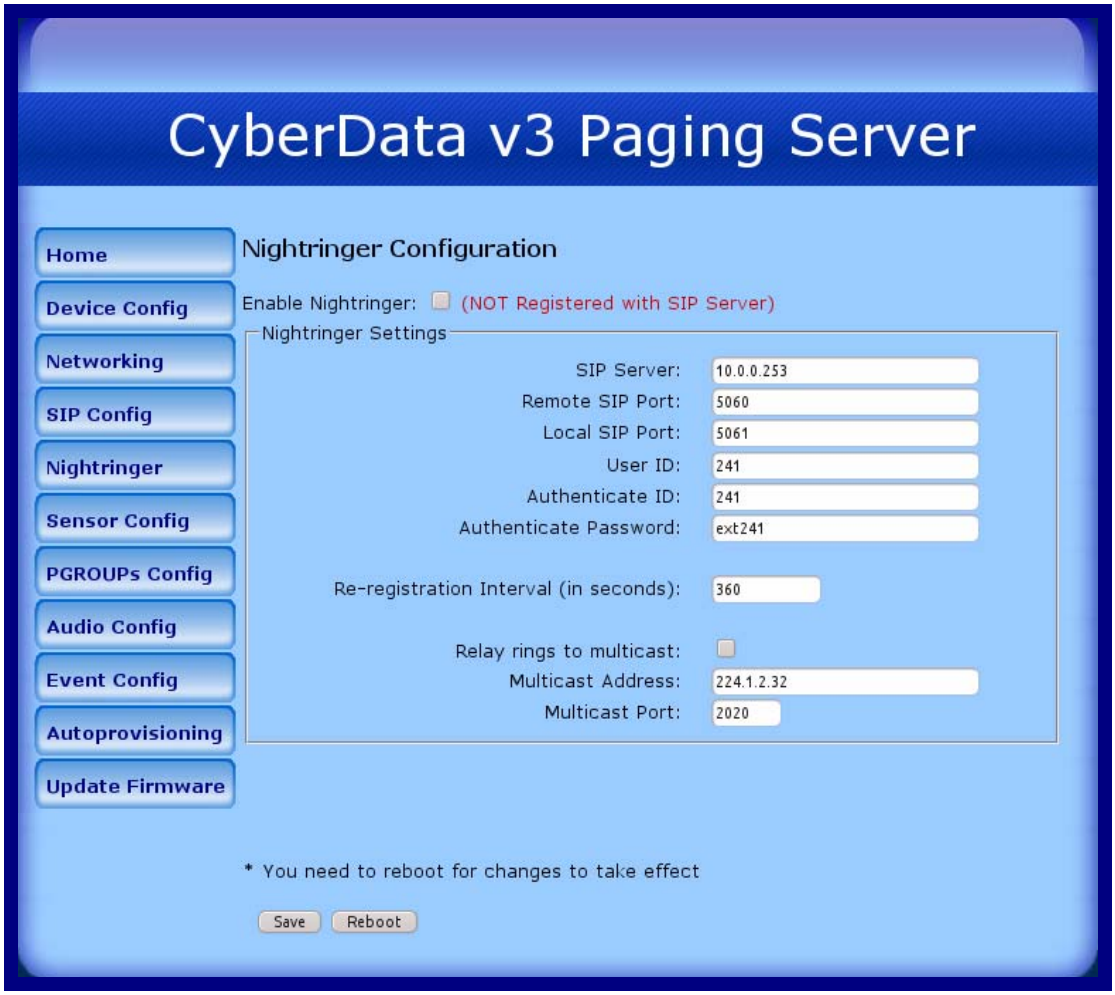


Device is set to **NOT** register with a SIP server

2.4.7 Configure the Night Ringer Parameters

1. Click on the **Nightringer** button to open the **Nightringer Configuration** page. See Figure 2-15.

Figure 2-15. Nightringer Configuration Setup



2. On the **Nightringer Configuration** page, enter values for the parameters indicated in Table 2-9.

Table 2-9. Nightringer Configuration Parameters

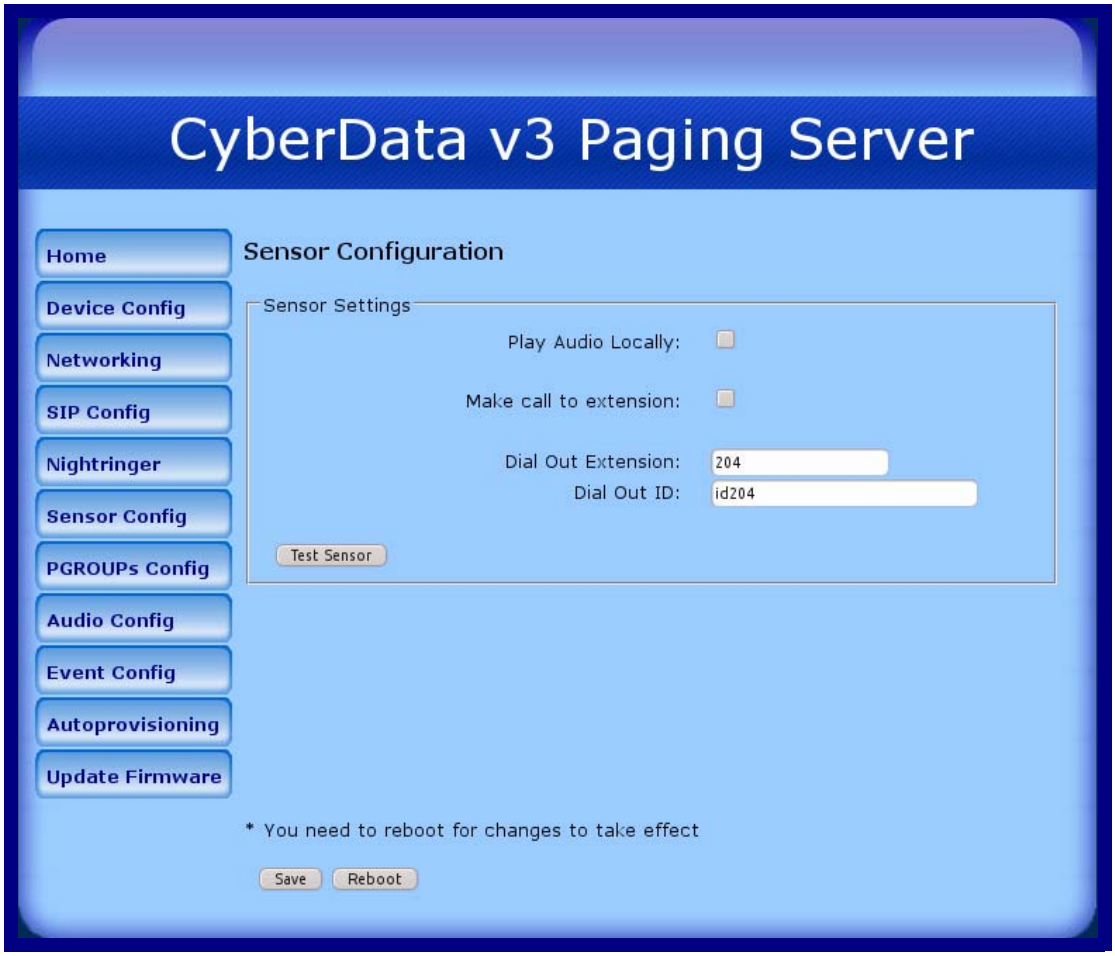
Web Page Item	Description
Enable Nightringer	When the nightringer is enabled, the unit will attempt to register a second extension with the SIP server. Any calls made to this extension will play a ringtone.
Nightringer Settings	
SIP Server	Type the SIP server represented as either a numeric IP address in dotted decimal notation.
Remote SIP Port	Type the Remote SIP Port number (default 5060) (8 character limit).
Local SIP Port	Type the Local SIP Port number (default 5061) (8 character limit). **Note**: This value cannot be the same as the **Local SIP Port** found on the **SIP Configuration Page**.
User ID	Type the **User ID** (up to 64 alphanumeric characters).
Authenticate ID	Type the **Authenticate ID** (up to 64 alphanumeric characters).
Authenticate Password	Type the **Authenticate Password** (up to 64 alphanumeric characters).
Re-registration Interval (in seconds)	Type the SIP Registration lease time in seconds (default is 60 minutes) (8 character limit). Re-registration Interval (in seconds)
Relay Rings to Multicast	When selected, a user-defined audio file is sent to the specified multicast address and port when the night ringer is activated.
Multicast Address	Type the Multicast address.
Multicast Port	Type the Multicast port number.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click on the **Save** button.
4. Click **Reboot** for the new settings to take effect.

2.4.8 Configure the Sensor Parameters

1. Click on the **Sensor Config** button to open the **Sensor Configuration** page. See Figure 2-16.

Figure 2-16. Sensor Configuration Setup



2. On the **Sensor Configuration** page, enter values for the parameters indicated in Table 2-10.

Table 2-10. Nightringer Configuration Parameters

Web Page Item	Description
Sensor Settings	
Play Audio Locally	When selected, when the sensor is triggered, the audio file for "Sensor Triggered" will play out of the line-out and 600-Ohm connectors.
Make Call to Extension	When selected, when the sensor is triggered, the Paging Server will call the **Dial Out Extension** and play the "Sensor Triggered" audio file when someone answers.
Dial Out Extension	Enter the Dial Out Extension that you want the Paging Server to call when the sensor is triggered.
Dial Out ID	Enter the caller ID for **Dial Out Extension**.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click on the **Save** button.

4. Click **Reboot** for the new settings to take effect.

2.4.9 Configure the Paging Groups (PGROUPS) Parameters

Note A PGROUP is a way of assigning multicast addresses and port numbers when configuring multicast paging speakers.

To assign a multicast address, you must first configure the CyberData VoIP speakers that you want to put into a paging zone by entering a particular multicast address and port number combination in the web configuration for these speakers.

1. Click on the **PGROUPS Setup** button to open the **PGROUPS Setup** page. See Figure 2-17.

Figure 2-17. PGROUPS Setup

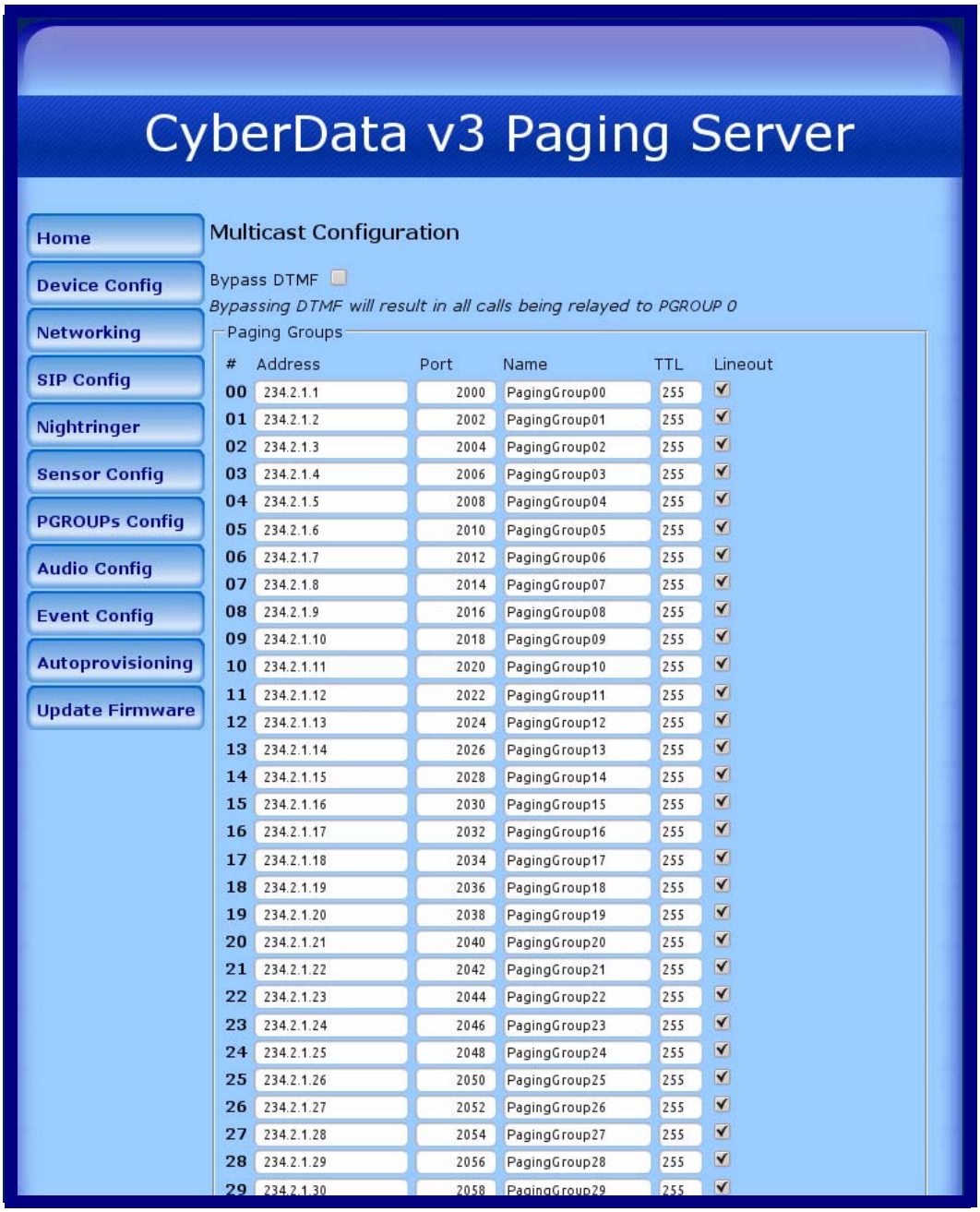
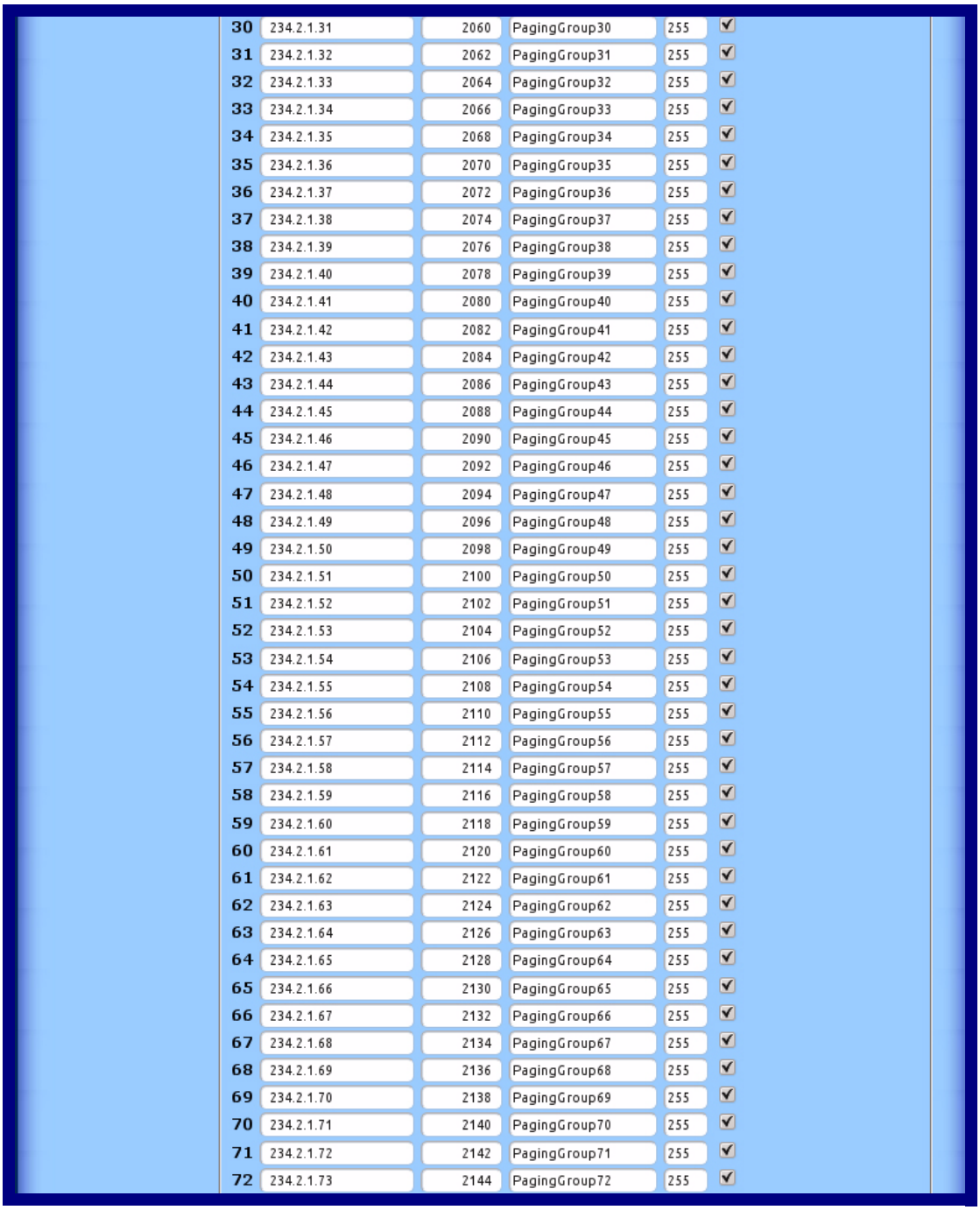
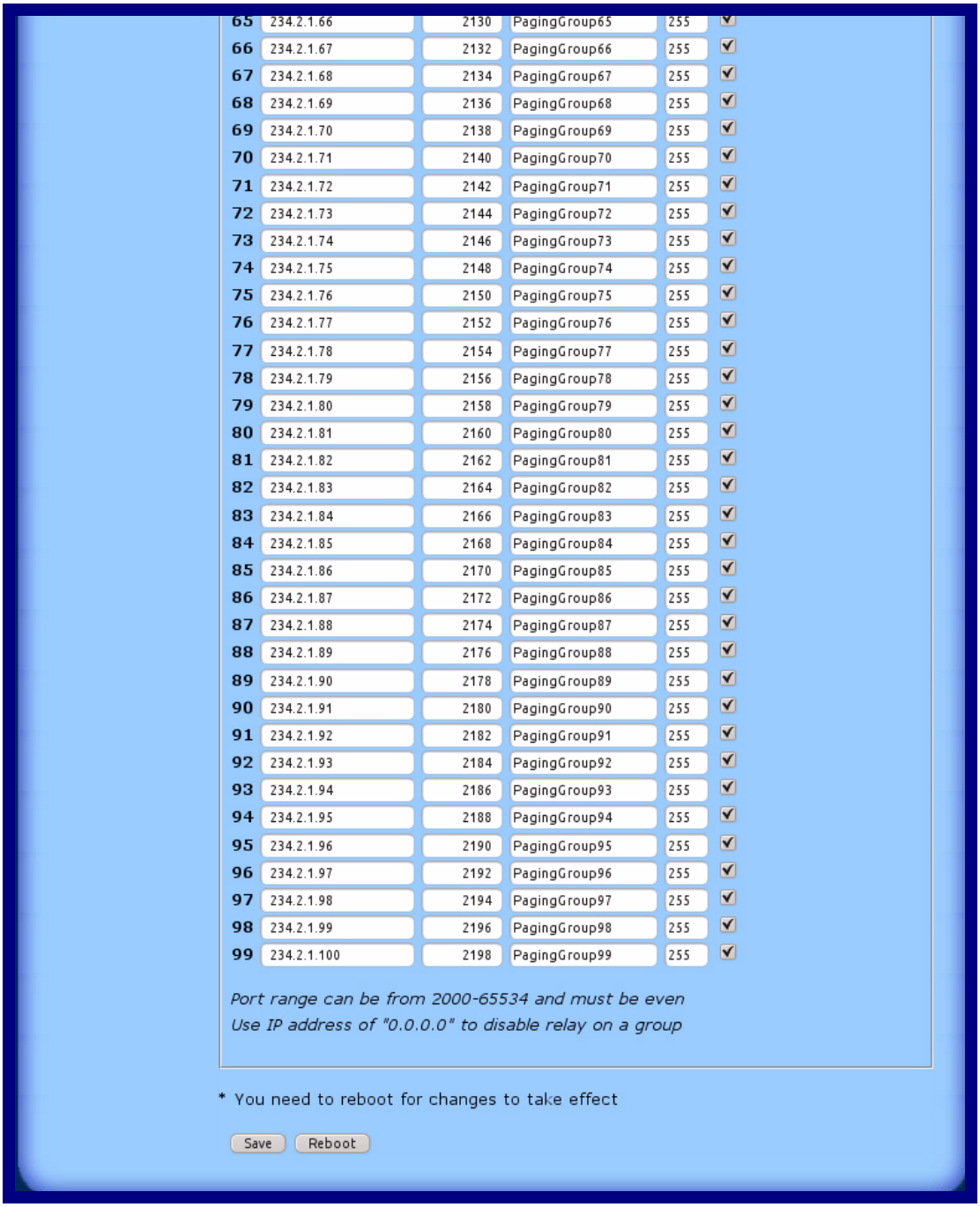

CyberData v3 Paging Server
Home
Device Config
Networking
SIP Config
Nightringer
Sensor Config
PGROUPs Config
Audio Config
Event Config
Autoprovisioning
Update Firmware
Multicast Configuration
Bypass DTMF
Bypassing DTMF will result in all calls being relayed to PGROUP 0
Paging Groups
Address Port Name TTL Lineout
00 234.2.1.1 2000 PagingGroup00 255
01 234.2.1.2 2002 PagingGroup01 255
02 234.2.1.3 2004 PagingGroup02 255
03 234.2.1.4 2006 PagingGroup03 255
04 234.2.1.5 2008 PagingGroup04 255
05 234.2.1.6 2010 PagingGroup05 255
06 234.2.1.7 2012 PagingGroup06 255
07 234.2.1.8 2014 PagingGroup07 255
08 234.2.1.9 2016 PagingGroup08 255
09 234.2.1.10 2018 PagingGroup09 255
10 234.2.1.11 2020 PagingGroup10 255
11 234.2.1.12 2022 PagingGroup11 255
12 234.2.1.13 2024 PagingGroup12 255
13 234.2.1.14 2026 PagingGroup13 255
14 234.2.1.15 2028 PagingGroup14 255
15 234.2.1.16 2030 PagingGroup15 255
16 234.2.1.17 2032 PagingGroup16 255
17 234.2.1.18 2034 PagingGroup17 255
18 234.2.1.19 2036 PagingGroup18 255
19 234.2.1.20 2038 PagingGroup19 255
20 234.2.1.21 2040 PagingGroup20 255
21 234.2.1.22 2042 PagingGroup21 255
22 234.2.1.23 2044 PagingGroup22 255
23 234.2.1.24 2046 PagingGroup23 255
24 234.2.1.25 2048 PagingGroup24 255
25 234.2.1.26 2050 PagingGroup25 255
26 234.2.1.27 2052 PagingGroup26 255
27 234.2.1.28 2054 PagingGroup27 255
28 234.2.1.29 2056 PagingGroup28 255
29 234.2.1.30 2058 PagingGroup29 255

Figure 2-18. PGROUPS Setup (continued)



30	234.2.1.31	2060	PagingGroup30	255	☑
31	234.2.1.32	2062	PagingGroup31	255	☑
32	234.2.1.33	2064	PagingGroup32	255	☑
33	234.2.1.34	2066	PagingGroup33	255	☑
34	234.2.1.35	2068	PagingGroup34	255	☑
35	234.2.1.36	2070	PagingGroup35	255	☑
36	234.2.1.37	2072	PagingGroup36	255	☑
37	234.2.1.38	2074	PagingGroup37	255	☑
38	234.2.1.39	2076	PagingGroup38	255	☑
39	234.2.1.40	2078	PagingGroup39	255	☑
40	234.2.1.41	2080	PagingGroup40	255	☑
41	234.2.1.42	2082	PagingGroup41	255	☑
42	234.2.1.43	2084	PagingGroup42	255	☑
43	234.2.1.44	2086	PagingGroup43	255	☑
44	234.2.1.45	2088	PagingGroup44	255	☑
45	234.2.1.46	2090	PagingGroup45	255	☑
46	234.2.1.47	2092	PagingGroup46	255	☑
47	234.2.1.48	2094	PagingGroup47	255	☑
48	234.2.1.49	2096	PagingGroup48	255	☑
49	234.2.1.50	2098	PagingGroup49	255	☑
50	234.2.1.51	2100	PagingGroup50	255	☑
51	234.2.1.52	2102	PagingGroup51	255	☑
52	234.2.1.53	2104	PagingGroup52	255	☑
53	234.2.1.54	2106	PagingGroup53	255	☑
54	234.2.1.55	2108	PagingGroup54	255	☑
55	234.2.1.56	2110	PagingGroup55	255	☑
56	234.2.1.57	2112	PagingGroup56	255	☑
57	234.2.1.58	2114	PagingGroup57	255	☑
58	234.2.1.59	2116	PagingGroup58	255	☑
59	234.2.1.60	2118	PagingGroup59	255	☑
60	234.2.1.61	2120	PagingGroup60	255	☑
61	234.2.1.62	2122	PagingGroup61	255	☑
62	234.2.1.63	2124	PagingGroup62	255	☑
63	234.2.1.64	2126	PagingGroup63	255	☑
64	234.2.1.65	2128	PagingGroup64	255	☑
65	234.2.1.66	2130	PagingGroup65	255	☑
66	234.2.1.67	2132	PagingGroup66	255	☑
67	234.2.1.68	2134	PagingGroup67	255	☑
68	234.2.1.69	2136	PagingGroup68	255	☑
69	234.2.1.70	2138	PagingGroup69	255	☑
70	234.2.1.71	2140	PagingGroup70	255	☑
71	234.2.1.72	2142	PagingGroup71	255	☑
72	234.2.1.73	2144	PagingGroup72	255	☑

Figure 2-19. PGROUPS Setup (continued)



65	234.2.1.66	2130	PagingGroup65	255	☑
66	234.2.1.67	2132	PagingGroup66	255	☑
67	234.2.1.68	2134	PagingGroup67	255	☑
68	234.2.1.69	2136	PagingGroup68	255	☑
69	234.2.1.70	2138	PagingGroup69	255	☑
70	234.2.1.71	2140	PagingGroup70	255	☑
71	234.2.1.72	2142	PagingGroup71	255	☑
72	234.2.1.73	2144	PagingGroup72	255	☑
73	234.2.1.74	2146	PagingGroup73	255	☑
74	234.2.1.75	2148	PagingGroup74	255	☑
75	234.2.1.76	2150	PagingGroup75	255	☑
76	234.2.1.77	2152	PagingGroup76	255	☑
77	234.2.1.78	2154	PagingGroup77	255	☑
78	234.2.1.79	2156	PagingGroup78	255	☑
79	234.2.1.80	2158	PagingGroup79	255	☑
80	234.2.1.81	2160	PagingGroup80	255	☑
81	234.2.1.82	2162	PagingGroup81	255	☑
82	234.2.1.83	2164	PagingGroup82	255	☑
83	234.2.1.84	2166	PagingGroup83	255	☑
84	234.2.1.85	2168	PagingGroup84	255	☑
85	234.2.1.86	2170	PagingGroup85	255	☑
86	234.2.1.87	2172	PagingGroup86	255	☑
87	234.2.1.88	2174	PagingGroup87	255	☑
88	234.2.1.89	2176	PagingGroup88	255	☑
89	234.2.1.90	2178	PagingGroup89	255	☑
90	234.2.1.91	2180	PagingGroup90	255	☑
91	234.2.1.92	2182	PagingGroup91	255	☑
92	234.2.1.93	2184	PagingGroup92	255	☑
93	234.2.1.94	2186	PagingGroup93	255	☑
94	234.2.1.95	2188	PagingGroup94	255	☑
95	234.2.1.96	2190	PagingGroup95	255	☑
96	234.2.1.97	2192	PagingGroup96	255	☑
97	234.2.1.98	2194	PagingGroup97	255	☑
98	234.2.1.99	2196	PagingGroup98	255	☑
99	234.2.1.100	2198	PagingGroup99	255	☑

Port range can be from 2000-65534 and must be even
Use IP address of "0.0.0.0" to disable relay on a group

* You need to reboot for changes to take effect

Save Reboot

2. On the **PGROUPS Setup** page, enter values for the parameters indicated in Table 2-11.

Table 2-11. PGROUPS Setup Parameters

Web Page Item	Description
Bypass DTMF	When selected, bypassing the DTMF will result in all calls being relayed to PGROUP 0.
#	Shows the paging group number.
Address	Enter the IP address of the PGROUP.
Port	Enter the port number of the PGROUP.
Name	Enter a name for the PGROUP.
TTL	The TTL field allows you to adjust the TTL. TTL is "time to live" and it describes how many networks (routers) a packet will go through before it is discarded. For more information, see Appendix C, "How to Use the Multicast Extensions.
Lineout	The Lineout field determines whether or not the V3 Paging Server will play audio out of the line-out port in addition to forwarding it to the Pgroup.

3. After changing the parameters, click **Save Settings**.

2.4.10 Operating the Paging Server

- When you call to make a page, the V3 Paging Server generates a tone over the phone.
- When you hear this tone, enter the two-digit code for the zone that you want to page.
- The V3 Paging Server establishes a connection to a zone.
- The V3 Paging Server generates another tone to the phone.
- When you hear this tone, you can begin speaking.

Note For *page-all*, you simply configure *all* speakers with a particular multicast address and port number combination, which represents one of the 100 zones that the paging server will support initially. Each speaker can still be part of 100 other paging zones in addition to the one *page-all* zone.

2.4.11 Configure the Audio Parameters

Click the **Audio Config** button to open the **Audio Configuration** page. See Figure 2-20. The **Audio Configuration** page is used to add custom audio to the board. User uploaded audio will take precedence over the audio files shipped with the Intercom.

Figure 2-20. Audio Configuration Page

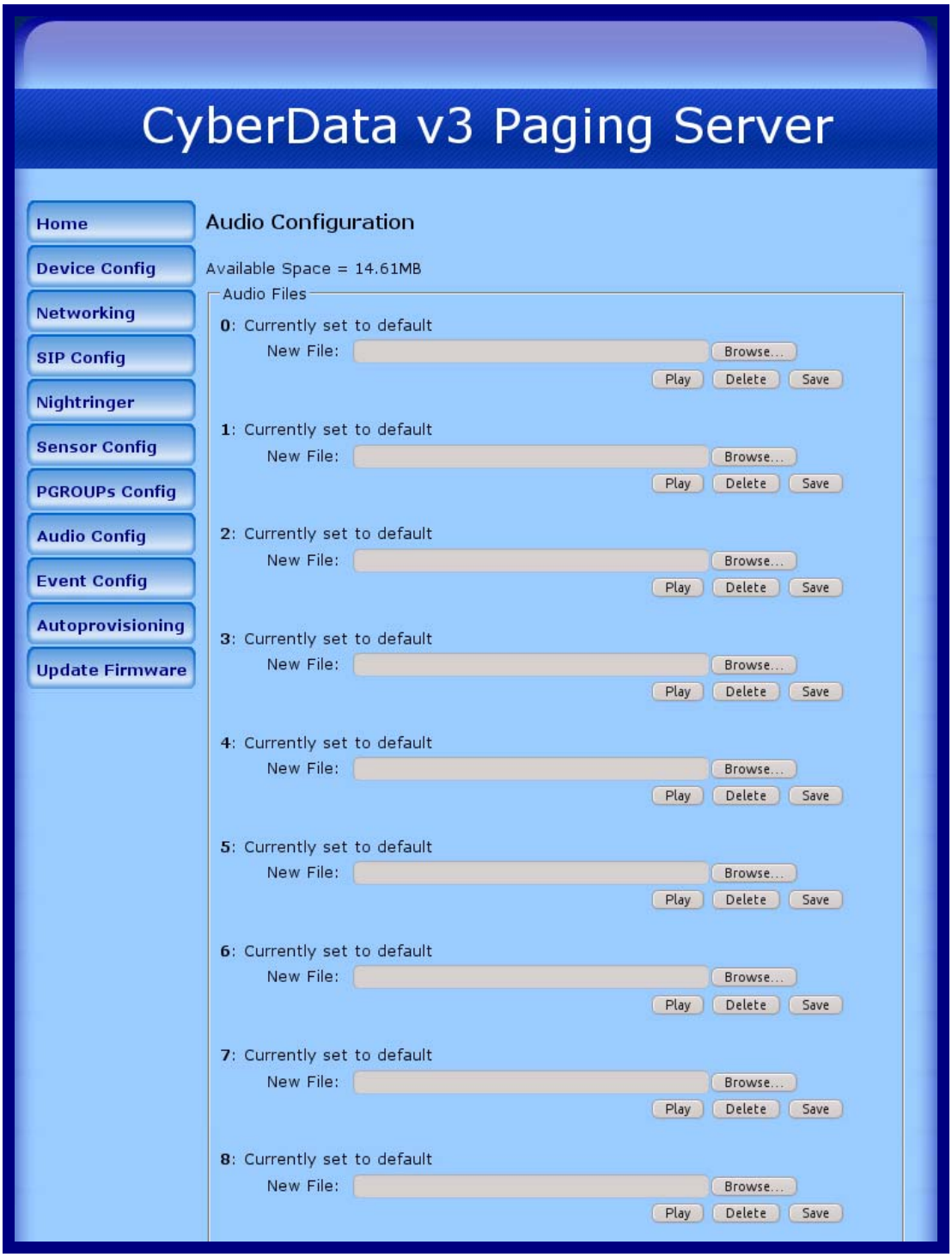
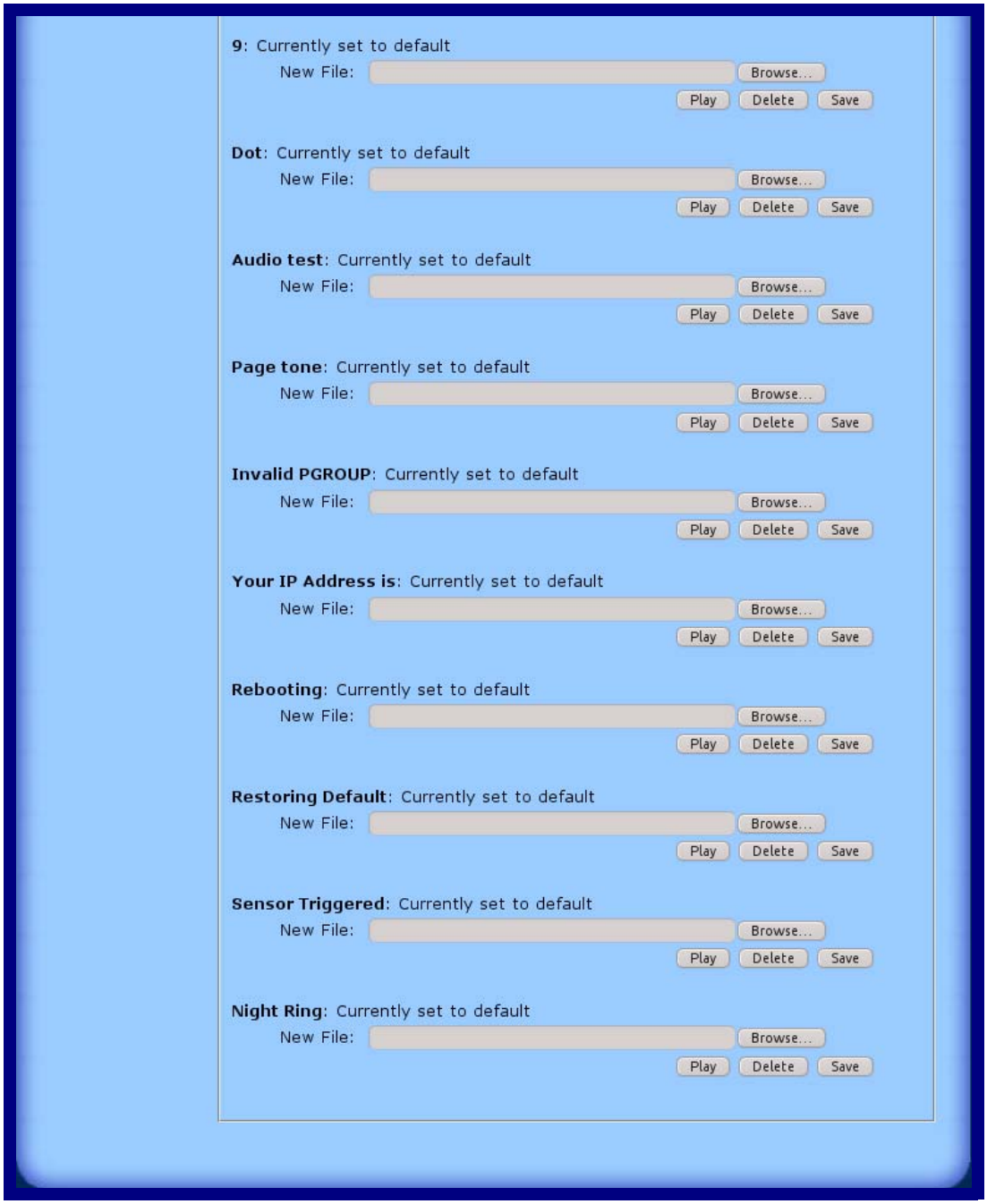


Figure 2-21. Audio Configuration Page



On the **Audio Configuration** page, enter values for the parameters indicated in Table 2-12.

Note Each entry on the **Audio Configuration** page replaces one of the stock audio files on the board. When the input box displays the word **default**, the V3 Paging Server is using the stock audio file. If that file is replaced with a user file, it will display the uploaded filename.

Table 2-12. Audio Configuration Parameters

Web Page Item	Description
Audio Files	
0-9	The name of the audio configuration option is the same as the spoken audio that plays on the board (24 character limit). '0' corresponds to the spoken word “zero.” '1' corresponds to the spoken word “one.” '2' corresponds to the spoken word “two.” '3' corresponds to the spoken word “three.” '4' corresponds to the spoken word “four.” '5' corresponds to the spoken word “five.” '6' corresponds to the spoken word “six.” '7' corresponds to the spoken word “seven.” '8' corresponds to the spoken word “eight.” '9' corresponds to the spoken word “nine.”
Dot	Corresponds to the spoken word “dot.” (24 character limit).
Audiotest	Corresponds to the message “This is the CyberData IP speaker test message...” (24 character limit).
Pagetone	Corresponds to a simple tone that is unused by default (24 character limit).
Invalid PGROUP	Corresponds to the message “Invalid PGROUP” (24 character limit).
Your IP Address is	Corresponds to the message “Your IP address is...” (24 character limit).
Rebooting	Corresponds to the spoken word “Rebooting” (24 character limit).
Restoring default	Corresponds to the message “Restoring default” (24 character limit).
Sensor Triggered	Corresponds to the message “Sensor Triggered” (24 character limit).
Night Ring	Specifies the ringtone for nightring. By default this parameter uses the same audio file that is selected for the **Ring Tone** parameter.
	The **Browse** button will allow you to navigate to and select an audio file.
	The **Play** button will play that audio file.
	The **Delete** button will delete any user uploaded audio and restore the stock audio file.
	The **Save** button will download a new user audio file to the board once you've selected the file by using the **Browse** button. The **Save** button will delete any pre-existing user-uploaded audio files.

2.4.11.1 User-created Audio Files

User created audio files should be saved in the following format:

RIFF (little-endian) data, WAVE audio, Microsoft PCM, 16 bit, mono 8000 Hz

You can use the free utility *Audacity* to convert audio files into this format. See Figure 2-22 through Figure 2-24.

Figure 2-22. Audacity 1

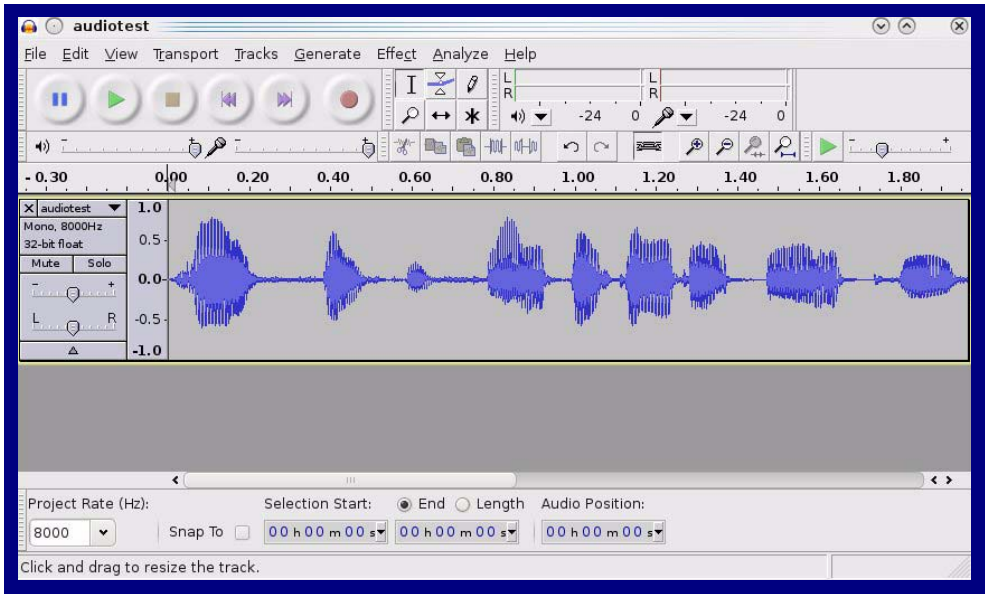
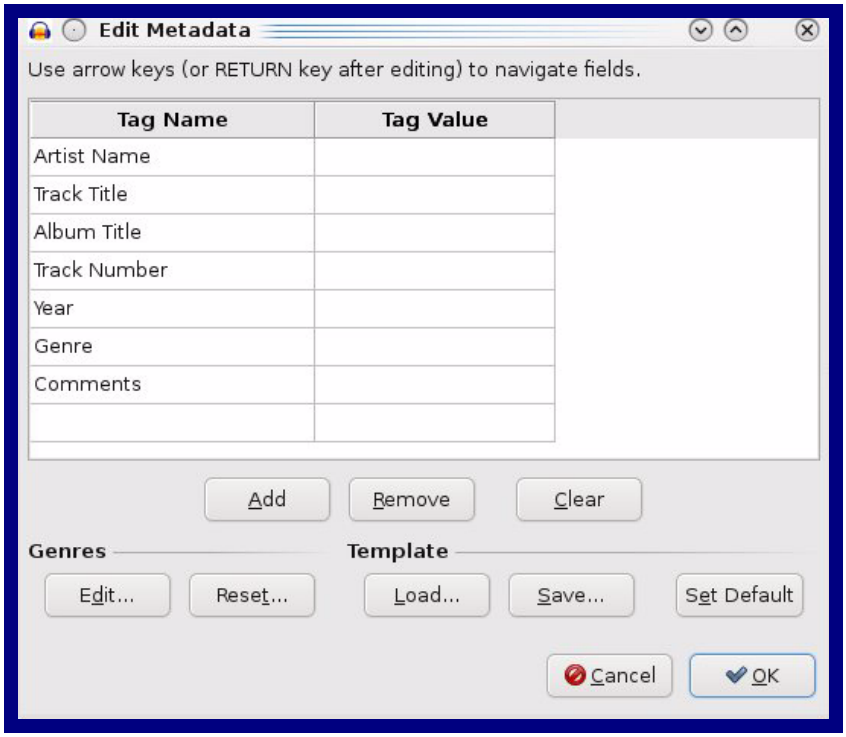


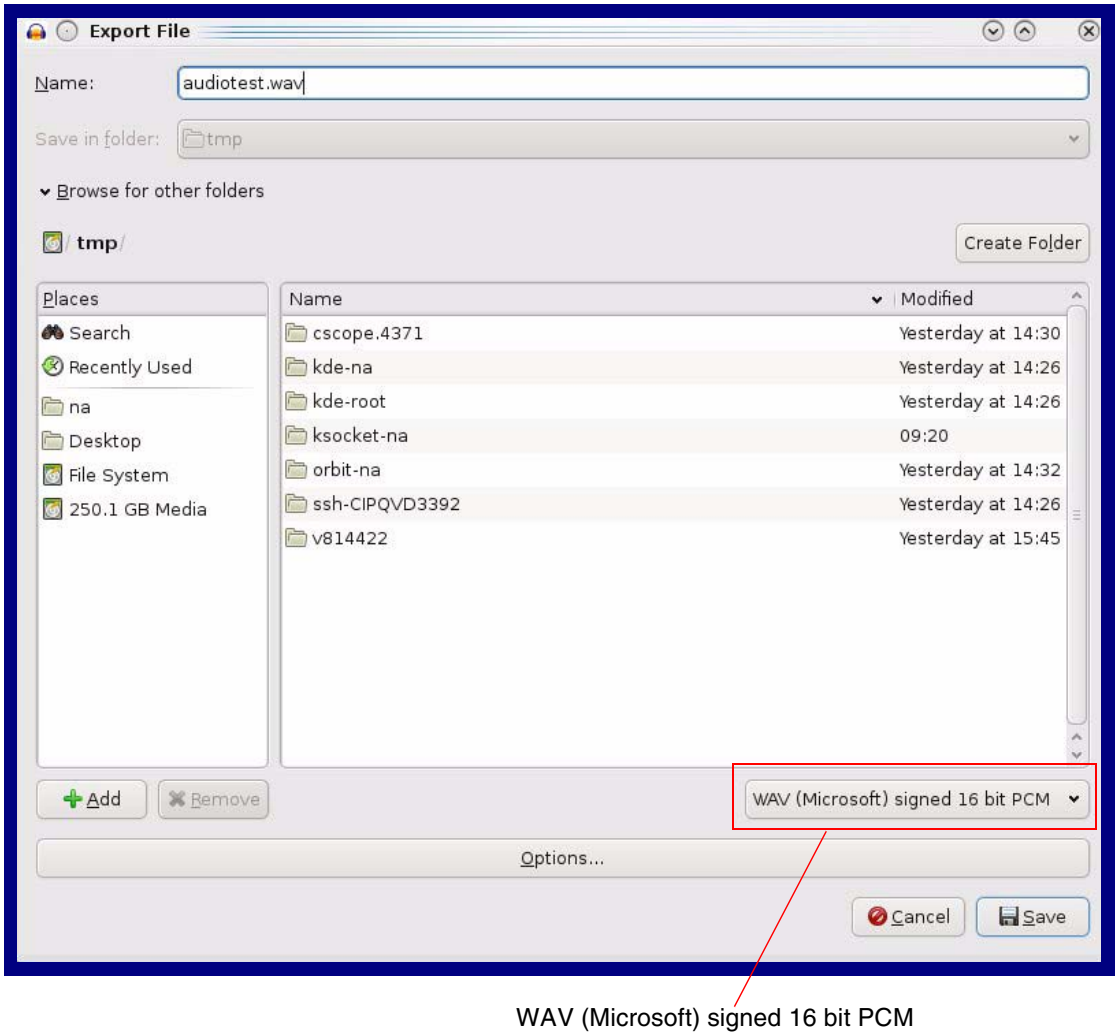
Figure 2-23. Audacity 2



When you export an audio file with Audacity, save the output as:

- **WAV (Microsoft) signed 16 bit PCM**.

Figure 2-24. WAV (Microsoft) signed 16 bit PCM



2.4.12 Configure the Event Parameters

Click the **Event Config** button to open the **Event Configuration** page (Figure 2-25). The **Event Configuration** page specifies a remote server that can be used to receive HTTP POST events when actions take place on the board.

Figure 2-25. Event Configuration Page

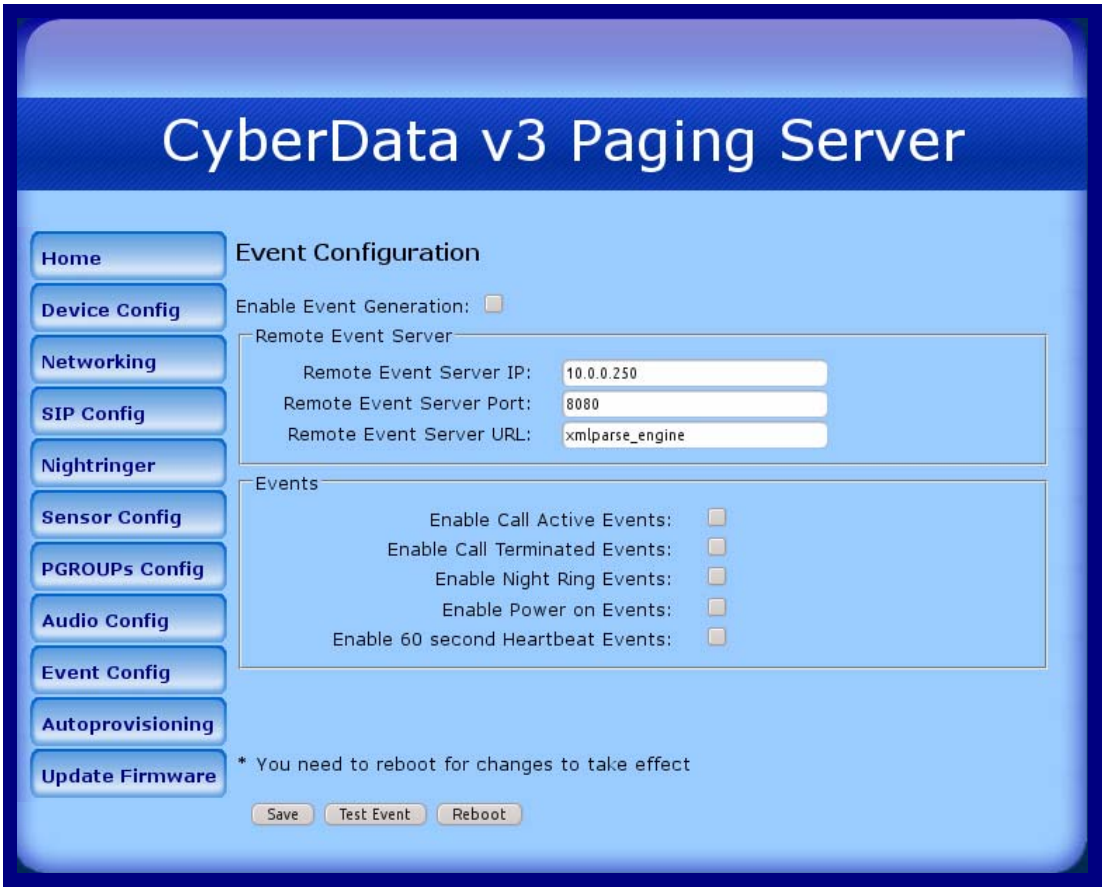


Table 2-13 shows the web page items on the **Event Configuration** page.

Table 2-13. Event Configuration

Web Page Item	Description
Enable Event Generation	When selected, Event Generation is enabled.
Remote Event Server	
Remote Event Server IP	Type the Remote Event Server IP address. (64 character limit)
Remote Event Server Port	Type the Remote Event Server port number. (8 character limit)
Remote Event Server URL	Type the Remote Event Server URL. (127 character limit)
Events	
Enable Call Active Events	When selected, Call Active Events are enabled.
Enable Call Terminated Events	When selected, Call Terminated Events are enabled.
Enable Night Ring Events	When selected, there is a notification when the unit receives a night ring.
Enable Power On Events	When selected, Power On Events are enabled.
Enable 60 Second Heartbeat Events	When selected, 60 Second Heartbeat Events are enabled.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Test Event	Click on the **Test Event** button to test an event.
Reboot	Click on the **Reboot** button to reboot the system.

2.4.12.1 Example Packets for Events

The server and port are used to point to the listening server and the 'Remote Event Server URL' is the destination URL (typically the script running on the remote server that's used to parse and process the POST events).

Note The XML is URL-encoded before transmission so the following examples are not completely accurate.

Here are example packets for every event:

```
POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 197
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>POWERON</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 199
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>HEARTBEAT</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 196
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>BUTTON</event>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 201
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>CALL_ACTIVE</event>
</cyberdata>
POST xmlparse_engine HTTP/1.1
```

```
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 205
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>CALL_TERMINATED</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 197
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RINGING</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>MULTICAST_START</event>
<index>8</index>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 233
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>MULTICAST_STOP</event>
<index>8</index>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RELAY_ACTIVATED</event>
</cyberdata>
POST xmlparse_engine HTTP/1.1
```

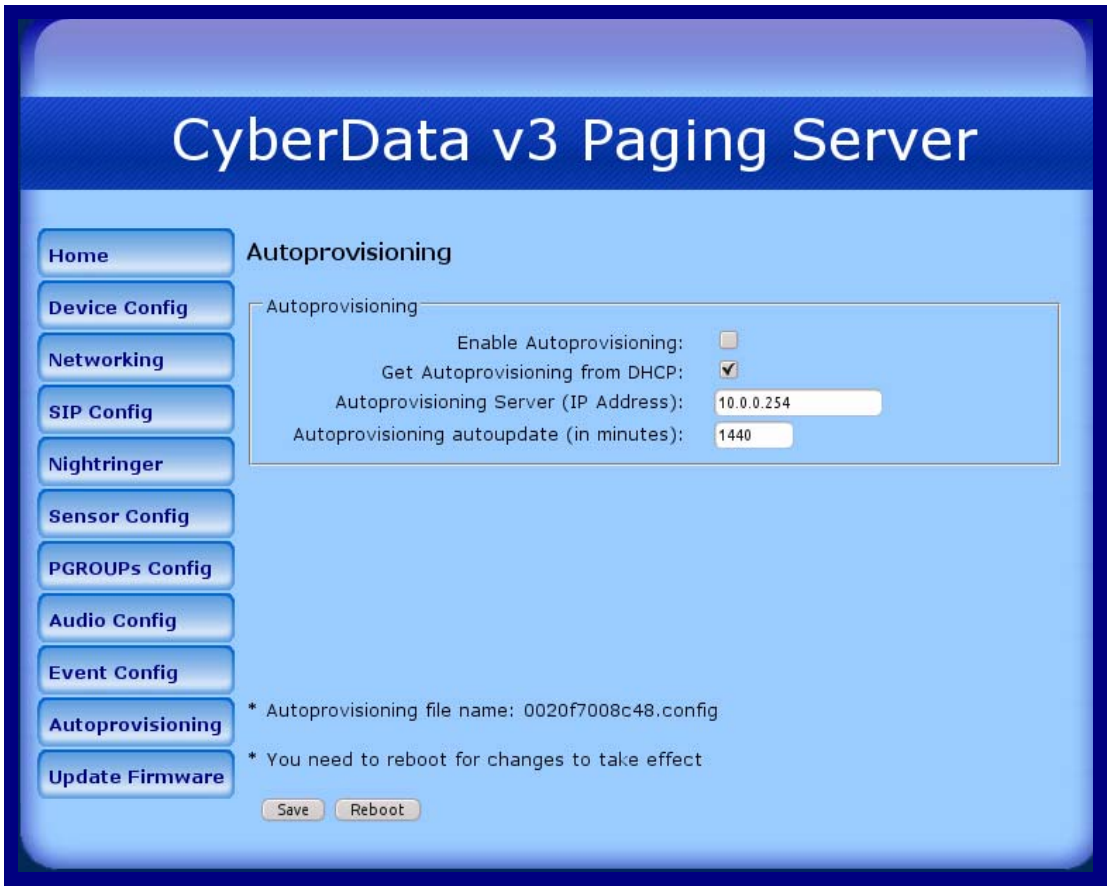
```
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RELAY_DEACTIVATED</event>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>NIGHTRINGING</event>
</cyberdata>
```

2.4.13 Configure the Autoprovisioning Parameters

1. Click the **Autoprovisioning** button to open the **Autoprovisioning Configuration** page. See Figure 2-26.

Figure 2-26. Autoprovisioning Configuration Page



2. On the **Autoprovisioning Configuration** page, you may enter values for the parameters indicated in Table 2-14.

Table 2-14. Autoprovisioning Configuration Parameters

Web Page Item	Description
Autoprovisioning	
Enable Autoprovisioning	See Section 2.4.13.1, "Autoprovisioning".
Get Autoprovisioning from DHCP	See Section 2.4.13.1, "Autoprovisioning".
Autoprovisioning Server (IP Address)	See Section 2.4.13.1, "Autoprovisioning" (15 character limit).
Autoprovisioning Autoupdate (in minutes)	Type the desired time (in minutes) that you want the Autoprovisioning feature to update (6 character limit).
Autoprovisioning file name	Displays the Autoprovisioning file name.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

3. After changing the parameters, click the **Save** button.

2.4.13.1 Autoprovisioning

Enable Autoprovisioning Option

With autoprovisioning enabled, the board will get its configuration from a remote TFTP server on startup or periodically on a scheduled delay. Autoprovisioned values will override values stored in on-board memory and will be visible on the web page. The board gets its autoprovisioning information from an XML-formatted file hosted from a TFTP server. CyberData will provide a template for this XML file and the user can modify it for their own use.

To use autoprovisioning, create a copy of the autoprovisioning template with the desired settings and name this file with the mac address of the device to configure (for example: **0020f7350058.config**). Put this file into your TFTP server directory and manually set the TFTP server address on the board.

It is not necessary to set every option found in the autoprovisioning template. As long as the XML is valid, the file can contain any subset. Options not autoprovisioned will default to the values stored in the on board memory. For example if you only wanted to modify the device name, the following would be a valid autoprovisioning file:

```
<?xml version="1.0" encoding="utf-8" ?>
<specific>
    <MiscSettings>
        <DeviceName>auto V3 Paging Server</DeviceName>
    </MiscSettings>

</specific>
```

Networking

The board will only apply networking settings or firmware upgrades after a reboot.

Get Autoprovisioning from DHCP

When this option is checked, the device will automatically fetch its autoprovisioning server address from the DHCP server. The device will use the address specified in **OPTION 150** (TFTP-server-name) or **OPTION 66**. If both options are set, the device will use **OPTION 150**.

Refer to the documentation of your DHCP server for setting up **OPTION 150**.

To set up a Linux DHCPD server to serve autoprovisioning information (in this case using both option 66 and 150), here's an example dhcpd.conf:

```
# dhcpd.conf
#
# Configuration file for ISC dhcpd (see 'man dhcpd.conf')
#
ddns-update-style ad-hoc;

option option-150 code 150 = ip-address;

subnet 10.0.0.0 netmask 255.0.0.0 {
        max-lease-time 120;
        default-lease-time 120;

        option routers                  10.0.0.1;
        option subnet-mask              255.0.0.0;

        option domain-name              "voiplab";
        option domain-name-servers       10.0.0.1;

        option time-offset              -8;     # Pacific Standard Time

        option tftp-server-name         "10.0.0.254";

        option option-150               10.0.0.254;

        range 10.10.0.1 10.10.2.1;}
```

Autoprovisioning Server (IP Address)

Instead of using DHCP to provide the autoprovisioning tftp server address, you can specify an address manually.

Autoprovisioning Autoupdate

If **Autoprovisioning** is enabled and the **Autoprovisioning Autoupdate** value is something other than **0** minutes, a service is started on startup that will wait the configured number of minutes and then try to re-download its autoprovisioning file. It will compare its previously autoprovisioned file with this new file and if there are differences, it will reboot the board.

Autoprovisioned Firmware Upgrades

An Autoprovisioned firmware upgrade only happens after a reboot, will take roughly three minutes, and the web page will be unresponsive during this time.

The '**FirmwareVersion'** value in the xml file *must* match the version stored in the '**FirmwareFile**'.

```
<FirmwareVersion>v5.0.5b01</FirmwareVersion>
<FirmwareFile>505b01-uImage-ceilingspeak</FirmwareFile>
```

If these values are mismatched, the board can get stuck in a loop where it goes through the following sequence of actions:

1. The board downloads and writes a new firmware file.
2. After the next reboot, the board recognizes that the firmware version does not match.
3. The board downloads and writes the firmware file again.

CyberData has timed a firmware upgrade at 140 seconds. Therefore, if you suspect the board is stuck in a loop, either remove or comment out the **FirmwareVersion** line in the XML file and let the board boot as it normally does.

Note For information about TFTP servers, see Appendix A: "Setting Up a TFTP Server".

Autoprovisioned Audio Files

Audio files are stored in non-volatile memory and an autoprovisioned audio file will only have to be downloaded once for each device. Loading many audio files to the device from the web page could cause it to appear unresponsive. If this happens, wait until the transfer is complete and then refresh the page.

The device uses the file name to determine when to download a new audio file. This means that if you used autoprovisioning to upload a file and then changed the contents of this file at the TFTP server, the device will not recognize that the file has changed (because the file name is the same).

Since audio files are stored in non-volatile memory, if autoprovisioning is disabled after they have been loaded to the board, the audio file settings will not change. You can force a change to the audio files on the board by one of the following two ways:

- Click **Delete** for each file that you want to restore to the factory default audio file on the **Audio Configuration** page**.**
- Change the autoprovisioning file with the word "***default***" set as the file name.

2.5 Upgrading the Firmware

1. Click the **Update Firmware** button to open the **Upgrade Firmware** page. See Figure 2-27.

Figure 2-27. Upgrade Firmware Page

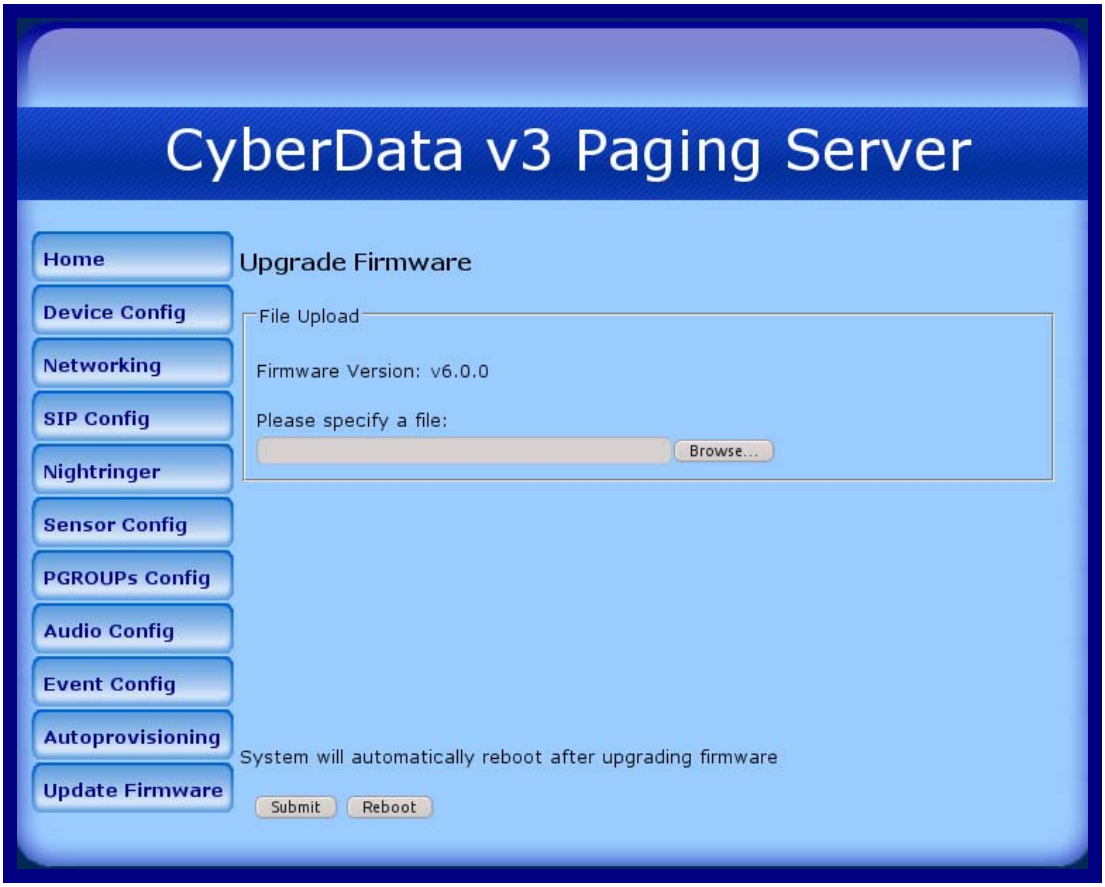


Table 2-15 shows the web page items on the **Upgrade Firmware** page.

Table 2-15. Upgrade Firmware Parameters

Web Page Item	Description
File Upload	
Firmware Version	Shows the current firmware version.
Please specify a file	Click the **Browse** button to navigate to the application firmware file that you want to upload.
Submit	Click on the **Submit** button to automatically upload the selected firmware and reboot the system.
Reboot	Click on the **Reboot** button to reboot the system.

2.5.0.1 Upgrade the Firmware

To upload the firmware from your computer:

1. Retrieve the latest V3 Paging Server firmware from the VoIP V3 Paging Server **Downloads** page at:

   http://www.cyberdata.net/products/voip/digitalanalog/pagingserverv3/downloads.html

2. Unzip the V3 Paging Server version file. This file may contain the following:
   - Firmware file
   - Release notes
3. Log in to the V3 Paging Server home page as instructed in Section 2.4.3, "Log in to the Configuration GUI".
4. Click the **Update Firmware** button to open the **Upgrade Firmware** page. See Figure 2-27.
5. Click **Browse**, and then navigate to the location of the V3 Paging Server firmware file.
6. Click **Submit**.

Note This starts the upload process. Once the V3 Paging Server has uploaded the file, the **Uploading Firmware** countdown page appears, indicating that the firmware is being written to flash. The V3 Paging Server will automatically reboot when the upload is complete. When the countdown finishes, the **Upgrade Firmware** page will refresh. The uploaded firmware filename should be displayed in the system configuration (indicating successful upload and reboot).

Appendix A: Setting Up a TFTP Server

A.1 Set up a TFTP Server

Autoprovisioning requires a TFTP server for hosting the configuration file.

A.1.1 In a LINUX Environment

To set up a TFTP server on LINUX:

1. Create a directory dedicated to the TFTP server, and move the files to be uploaded to that directory.
2. Run the following command where `/tftpboot/` is the path to the directory you created in Step 1: the directory that contains the files to be uploaded. For example:

   ```
   in.tftpd -l -s /tftpboot/your_directory_name
   ```

A.1.2 In a Windows Environment

You can find several options online for setting up a Windows TFTP server. This example explains how to use the Solarwinds freeware TFTP server, which you can download at:

http://www.cyberdata.net/support/voip/solarwinds.html

To set up a TFTP server on Windows:

1. Install and start the software.
2. Select **File/Configure/Security** tab/**Transmit Only**.

Make a note of the default directory name, and then move the firmware files to be uploaded to that directory.

Appendix B: Troubleshooting/Technical Support

B.1 Frequently Asked Questions (FAQ)

Go to the following URL to see CyberData's list of frequently asked questions:

http://www.cyberdata.net/products/voip/digitalanalog/pagingserverv3/faqs.html

B.1.1 Documentation

The documentation for this product is released in an English language version only. You can download PDF copies of CyberData product documentation at:

http://www.cyberdata.net/products/voip/digitalanalog/pagingserverv3/docs.html

B.2 Contact Information

Contact	CyberData Corporation 3 Justin Court Monterey, CA 93940 USA www.CyberData.net Phone: 800-CYBERDATA (800-292-3732) Fax: 831-373-4193
Sales	Sales 831-373-2601 Extension 334
Technical Support	The fastest way to get technical support for your VoIP product is to submit a VoIP Technical Support form at the following website: **http://www.cyberdata.net/support/contactsupportvoip.html** We have several technical support staff monitoring this form and they will contact you within 12 hours after receiving a form submission. Phone: (831) 373-2601, Ext. 333 Email: support@cyberdata.net
Returned Materials Authorization	To return the product, contact the Returned Materials Authorization (RMA) department: Phone: 831-373-2601, Extension 136 Email: RMA@CyberData.net When returning a product to CyberData, an approved CyberData RMA number must be printed on the outside of the original shipping package. No product will be accepted for return without an approved RMA number. Send the product, in its original package, to the following address: CyberData Corporation 3 Justin Court Monterey, CA 93940 Attention: RMA "your RMA number"
RMA Status Form	If you need to inquire about the repair status of your product(s), please use the CyberData RMA Status form at the following web address: **http://www.cyberdata.net/support/rmastatus.html**

B.3 Warranty

CyberData warrants its product against defects in material or workmanship for a period of two years from the date of purchase. Should the product fail within the warranty period, CyberData will repair or replace the product free of charge. This warranty includes all parts and labor.

Should the product fail out-of-warranty, a flat rate repair charge of one half of the purchase price of the product will be assessed. Repairs that are in warranty but are damaged by improper modifications or abuse, will be charged at the out-of-warranty rate. Products shipped to CyberData, both in and out-of-warranty, are shipped at the expense of the customer. Shipping charges for repaired products shipped back to the customer by CyberData, will be paid by CyberData.

CyberData shall not under any circumstances be liable to any person for any special, incidental, indirect or consequential damages, including without limitation, damages resulting from use or malfunction of the products, loss of profits or revenues or costs of replacement goods, even if CyberData is informed in advance of the possibility of such damages.

B.3.1 Warranty & RMA Returns within the United States

If service is required, you must contact CyberData Technical Support prior to returning any products to CyberData. Our Technical Support staff will determine if your product should be returned to us for further inspection. If Technical Support determines that your product needs to be returned to CyberData, an RMA number will be issued to you at this point.

Your issued RMA number must be printed on the outside of the shipping box. No product will be accepted for return without an approved RMA number. The product in its original package should be sent to the following address:

CyberData Corporation

3 Justin Court.

Monterey, CA 93940

Attn: RMA "xxxxxx"

B.3.2 Warranty & RMA Returns Outside of the United States

If you purchased your equipment through an authorized international distributor or reseller, please contact them directly for product repairs.

B.3.3 Spare in the Air Policy

CyberData now offers a *Spare in the Air* no wait policy for warranty returns within the United States and Canada. More information about the *Spare in the Air* policy is available at the following web address:

http://www.cyberdata.net/support/warranty/spareintheair.html

B.3.4 Return and Restocking Policy

For our authorized distributors and resellers, please refer to your CyberData Service Agreement for information on our return guidelines and procedures.

For End Users, please contact the company that you purchased your equipment from for their return policy.

B.3.5 Warranty and RMA Returns Page

The most recent warranty and RMA information is available at the CyberData Warranty and RMA Returns Page at the following web address:

http://www.cyberdata.net/support/warranty/index.html

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